THE

GENESEE FARMER:

A MONTHLY JOURNAL DEVOTED TO

AGRICULTURE & HORTICULTURE,

DOMESTIC AND RURAL ECONOMY.

ILLUSTRATED WITH NUMEROUS ENGRAVINGS OF

FARM BUILDINGS, IMPLEMENTS, DOMESTIC ANIMALS,

FRUITS, FLOWERS, SHRUBS, &c.

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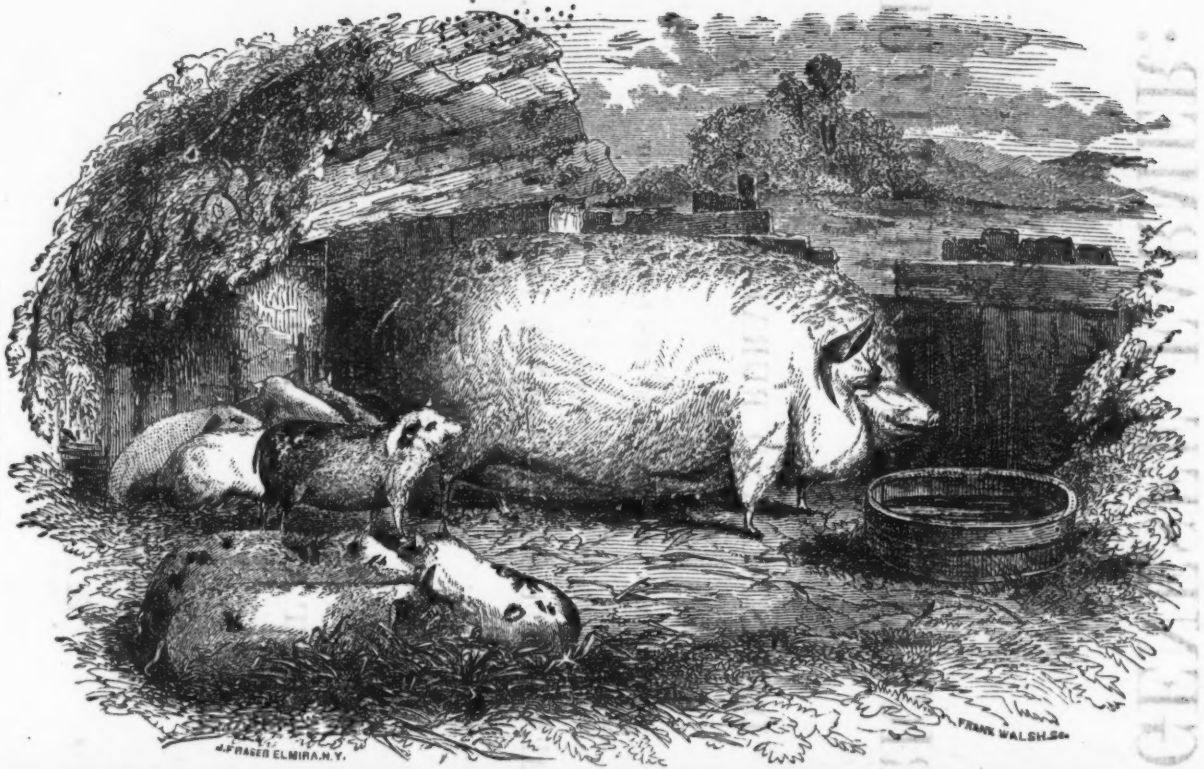


SOW AND PIGS OF THE LARGE BREED, TO WHICH WAS AWARDED THE FIRST PRIZE AT THE FAIR OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND

THE
Genesee Farmer.

Vol. XX, Second Series. ROCHESTER, N. Y., JANUARY, 1859. No. 1.

MANURES FOR POTATOES.

In the April number of the *Genesee Farmer* for 1858, we gave the results of some experiments, made by the proprietor of this journal, with several artificial fertilizers on potatoes. It was there shown that though half the ash of potatoes consists of potash, four hundred pounds of unleached wood ashes gave an increase of only five bushels per acre, while 150 lbs. of sulphate of ammonia gave an increase of 45 bushels per acre, and 150 lbs. of sulphate of ammonia and 300 lbs. of superphosphate of lime gave an increase of 84 bushels per acre.

We then remarked that these experiments indicate that potatoes require, in an eminent degree, ammonia and phosphates, and that therefore Peruvian guano, which contains about 18 per cent. of ammonia and 25 per cent. of phosphates, is one of the best artificial manures that can be used for potatoes, and instanced the following fact in confirmation:

"In the same field on which the above experiments were made, two acres were planted with potatoes, in 1852, without any manure, and two acres with 300 lbs. of Peruvian guano per acre, sown broadcast. The two acres without manure produced 238 bushels, and the two acres dressed with guano produced 410 bushels, *or an increase of eighty-six bushels per acre.*"

Since then, the results of some experiments made in Scotland have been published in the *Quarterly Journal of Agriculture*, which confirm this opinion.

There were forty-seven experiments in all, but our space prevents allusion to more than the principal ones.

Of any single manure, Peruvian guano gives the greatest increase; and also, as an auxiliary to farm manure, it affords the best result.

Sulphate of lime (plaster) was used in unusually large quantity. Eight hundred and ninety-six lbs., when used alone, gave an increase of 11½ bushels; and when used with farm manure, it caused a *decrease* of 9½ bushels, as compared with the plot receiving the same quantity of farm manure alone! This is a result we can not account for. Muriate of potash, used with farm manure, also caused a *decrease* in the produce. In our own experiments, 100 lbs. of plaster, used alone, gave an increase of six bushels per acre over the unmanured plot.

As more convenient for comparison, we give the main results in tabular form:

Manures used and quantity per acre.	Produce in bushels per acre.	Increase in bushels per acre.
No manure	157	....
896 lbs. of sulphate of lime (plaster)	168½	11½
663 lbs. of superphosphate of lime	191	34
376 lbs. of Peruvian guano	275	118
252 lbs. of sulphate of ammonia	179	22
224 lbs. of nitrate of soda	193½	36½
15 loads of farm manure	189½	32½
15 loads of farm manure and 896 lbs. of sulphate of lime (plaster)	189	32
15 loads of farm manure and 376 lbs. of Peruvian guano	300½	143½
15 loads of farm manure and 663 lbs. of superphosphate of lime	214½	57½
15 loads of farm manure and 252 lbs. of sulphate of ammonia	291	134

It is evident that, to raise large crops of potatoes, as of wheat, barley, oats, corn, etc., we require ammonia and phosphates. If these are present, most soils can furnish an abundance of all the other constituents of plants; and if they can not, there is no *natural* way of supplying ammonia and phosphates that will not at the same time supply an adequate quantity of every other element required. To get ammonia at a cheap rate, is the grand problem which American farmers have to solve. We know of no better way, at present, than to raise plenty of clover, peas, beans, turnips and other roots, and feed them to stock on the farm, using as much oil-cake and other rich, nitrogenous food, in addition, as they can afford — of course being careful to save all the manure.

MANURES FOR GRASSES.

Nearly all the experiments which have been made with artificial manures for grasses, indicate that, like wheat, barley, oats, etc., the grasses proper—such as timothy, rye-grass, etc.—require a large amount of ammonia. In the park at Rothamsted, which has been in grass for a great number of years, and the crop frequently made into hay and removed from the land, manures containing much ammonia were very beneficial on the grasses, while those furnishing potash, soda, and other inorganic substances, had the effect of causing clover and other leguminous plants to spring up and flourish. This effect was very marked, and the result fully sustains the deductions made from direct experiments on clover, wheat, barley, etc. We are warranted in concluding that clover and other leguminous plants require a larger amount of alkalies in the soil, than wheat and the grasses generally, while the latter require manures rich in ammonia.

Some experiments recently made in Scotland, by Thomas Ferguson, also favor this opinion. Land recently seeded with rye-grass and clover, was top-dressed with various fertilizers. Those furnishing a free supply of ammonia or nitric acid, increased the rye-grass to such an extent "that the clover plant was choked, and came up very thin in the aftermath." One hundred and twelve lbs. of sulphate of ammonia, costing $4.50, gave an *increase* of 1,524 lbs. of hay per acre; 224 lbs. of Peruvian guano, costing $6, an increase of 1,260 lbs.; 112 lbs. nitrate of soda, costing $5, an increase of 1,540 lbs.; 280 lbs. of superphosphate of lime, costing $5, an increase of 292 lbs.; while sulphate and muriate of potash gave an increase of only 30 lbs.

In another field, on a two-year old pasture, an application of five dollars' worth of guano "at least doubled the outlay in grass, as also the sulphate of ammonia and nitrate of soda, all of which thickened the grass plants, beside giving them a quick growth."

IMPORTANCE OF COMFORT TO ANIMALS.

Let me touch a cord of compassion, my friend, as I point to that poor shivering flock of sheep exposed to the cold air this morning, as they have been since breakfast. Pray turn them into the barn, and give them something to pick over, at least, if not to eat, that they may drive away the thought and feeling of cold, which threatens to shake them to pieces. I address every man who leaves his sheep and cattle exposed to the weather when it is, as it is now, below freezing, and especially when the wind is strong enough to open the wool and stir the hair of the cows. It is sufficient to say it makes them uncomfortable. No animal in this state for long and frequent periods was ever known to make the most of the food given it, or to improve in flesh and fat and muscle. It is enough for me to hear the cattle lowing in the barn, or see them walking about the yard uneasily, or to feed them irregularly, to satisfy myself that at the following milking the quantity will be less than usual, or that the oxen when working will be restless and disobedient, or weak and unwilling to haul their load; and I always look here for the cause of the evil. An interesting anecdote illustrating this fact, may be found in the *Farmer's Guide*, where a great diminution of milk was the result of irregular feeding of a lot of cows in possession of the author.

The piercing wind, and still, cutting cold, has a no less disastrous effect. The quantity of food consumed has been clearly proved to be much greater than otherwise, and the profit derived from it at the same time is found to be much less. If wandering about the yard causes sheep and cattle to eat more food to less advantage than when penned up, who will deny that any additional demand upon comfort, quiet, animal heat and fat, is a source of loss to the farmer? Yes, my friend, this little matter also demands your care. O. P. S.

Byfield, Mass., December, 1858.

OIL-CAKE FOR COWS.

Mr. Elijah Wood, Jr., of Concord, who keeps seventy cows, considers oil-cake one of the best articles of food for them, even at $35 per ton, its present price. Of so much importance does he regard it, that he would sell corn at a dollar a bushel and purchase cake, to some extent, for cow-feed. He finds the cake of great utility in seasoning and imparting a relish to coarse fodder—as bog hay, straw, etc. The fodder being cut and thrown into a large trough, it is moistened, and the ground cake mixed through it. After standing a few hours, the odor of the cake is found to have penetrated the entire mass, and the cattle eat it with avidity. Mr. W. finds that no objectionable quality is imparted to the milk by feeding two quarts of the ground cake to each cow daily. He prefers, however, that the cake should be mixed either with shorts or shorts and corn meal, in about equal proportions. The milk is sold for Boston market.

From former experience in the use of oil-cake, we agree with Mr. Wood in his estimate of its value for milch cows. We have found that from a pound to two pounds a day, to a cow, in the winter season, made a very profitable increase of butter, the quality of which was not inferior to that produced from any other food. But if the cake was increased beyond this quantity, the quality of the butter was sometimes injured. Cake in moderate quantities is highly favorable to the health of cows. They show it by the smoothness of their coats and the suppleness of their limbs. It also greatly improves the quality of the manure. English farmers do not understand how it is that Americans can afford to export oil-cake. Neither do we.—*Boston Cultivator.*

To prevent Turnips sprouting in warm Cellars in Winter, cut off all the fibrous roots and a portion of the tap root. The tops should also be cut close. This will not prevent them from heating and decaying, if placed in large piles.—B.

THE POTATO DISEASE.

The Royal Agricultural Society has awarded a purse to Dr. Lang, of Ipplepen, for a paper on the Potato, its cultivation, production and disease. The conclusions at which he arrives are:

"That the disease is of a fungoid nature, increased in virulency by atmospheric causes. That all manures are injurious, saving only lime and salt. That the earliest Potatoes in ripening should be exclusively grown. That earthing up repeatedly with fine earth is the only effectual preventive to the ravages of the disease."

"These opinions," says the *Gardener's Chronicle*, "are much the same as those which have been repeatedly expressed by ourselves, with the exception of recommending lime and salt as a manure, and trusting to frequent earthing up. But we must express our entire disent to the author's statement that disease never originates in the lower portion of the stem where it adjoins the root. We can only say that during 13 years that we have studied the phenomena of this singular malady we never saw an instance to the contrary."

Genesee Farmer Prize Essays.

FARMING AS A VOCATION.

"For the best essay calculated to give farmers an adequate conception of the nature and worth of their vocation."

The life of the farmer has ever been considered by *himself*, one of toil and drudgery, but with how much reason, it may be well to ask, to investigate, and to become satisfied. It is the lot of man in general to have an occupation. If not necessary for a living, it is made a means of obtaining wealth, fame, or power. A few, born to wealth or titles, pursue no calling but that of pleasure. Such lead miserable lives, and do little or no good in the world. It is appointed unto all men *to work*. It is necessary to health, strength, comfort, and happiness. But to work, it is not necessary to guide the plow or harrow, to wield the axe or scythe, to sow or reap. There are other kinds of work, equally laborious and fatiguing — other occupations more wearing to the system, and attended with less pleasure. In this country, there are more men engaged in farming than in any other occupation, and in the rural districts, they constitute a large majority of the inhabitants, and, as a consequence, see and know little of the drudgery of other occupations. In their visits to the mechanic, or manufacturer, they see him sheltered from the storms and cold, they notice that his skin is less tawny, his hands softer and whiter, and his clothes perhaps less soiled and torn; and it is but natural that they should think his labor less hard than theirs. They see the merchant behind his counter smiling to his customers, or at his desk counting his money, and they cannot think *he* *works;* and they go away wishing that Providence had been as kind to them. They see the lawyer advocating the cause of his client, uttering with eloquence witty or grave sentences, bringing tears to the eyes, or laughter to the countenances, of judge, jury, and spectators; and they go away, repining that the gifts of Providence are so partially bestowed. They see not the mechanic at work by his lamp, while farmers are reading by their firesides; they see him not with his accounts, anxiously looking forward to the time when his payments become due, or his flour barrel empty, or his pork barrel out; they see not the anxious and care-worn countenance of the merchant, while alone in his office, just before his bank note becomes due, and no money to meet it; and they see not the lawyer in the still hours of the night, with aching head and wearied eyes, looking up authorities to sustain his cause on the eve of trial.

It is *they themselves — the farmers* — that have set the stamp of drudgery upon their occupation. No one else admits or believes it. The lawyer, the doctor, the merchant, and the mechanic, envy the farmer his farm and his happiness — his bread, butter, and cheese — his fruits, meats, and his grains, the product of his own labor, that he can eat with an appetite sharpened by muscular exercise, and knowing that they are pure and healthy. Ask the mechanic what he is striving for, and what is his aim. *For a home*, a piece of land that I can cultivate, and eat the fruits of my own raising; the merchant will tell you that he hopes to end his days upon a farm; and the lawyer and doctor will tell you the same. What if their faces are blanched while the farmer is tawny — their fingers delicate and suple, while the former are dingy and clumsy — their garments fine and clean, while his are soiled and coarse. Each is appropriate and equally respectable. A chimney-sweet in white linen, or a farmer at his plow in fine broadcloth, would be an object of ridicule, equally with the lawyer in rags. More men make themselves ridiculous by overdressing than the reverse. If the farmer has not delicacy, he has strength, and power of endurance — far more valuable. If he is not educated and refined, it is no fault of his *occupation*, did he himself not think so; for no one has more leisure for reading and study. If he mingles less with the world, and learns less of etiquette, he has opportunity for thought, and learns less of deception, intrigue, and chicanery, which make no one happy. Whose sons make the most enterprising and successful merchants, the most profound statesmen, the most eminent engineers, and the most learned lawyers and divines? *The Farmer's.* They go forth from the farm, with healthy blood in their veins, inherited from healthy parents, and consequently have healthy and vigorous minds. Who are looked up to as defenders of our homes in case of invasion? Whose names are in our jury boxes, and whose names are sought for (aye, a little too often *successfully*), on a bank note? Brother framers, let us not repine at our lot; let us not envy others while they envy us; let us honor our calling, and it will honor us.

"Honor and fame from no *condition* rise;"
"He that would win, *must labor for the prize*"

Gorham, N. Y., Nov., 1858. E. B. P.

SOCIALITY AMONG FARMERS.

It is a great and obvious truth, that the cultivator of the soil has not the same conveniences, opportunities, and facilities of daily intercourse, communication, and comparison of knowledge and opinion, as the followers of the commercial and manufacturing interests. The followers of the latter naturally congregate together in cities, and have immediate means of frequent communication. Their sympathies, feelings, and opinions, circulate like electricity immediately through the whole body, to their advantage, encouragement, and success.

How is it with the cultivators of the soil? At home — separated — distributed among a thousand rural fields, each attentive to his own acres, they have only occasional opportunities of mingling and communicating with each other. If among commercial men, chambers of commerce are found necessary — if among trades, guilds are found beneficial — how much more necessary and advisable to have social institutions calculated to bring together the representatives of the great agricultural interests.

The duties of the farmer are varied, intricate, ever-changing — dealing in trial, experiment, and new endeavor — coping with nature in every mood, and witnessing results involving mysteries which no research has discovered, or philosophy explained the cause. His experience is beyond price to the whole family of man, and he is called upon by the highest, noblest, and most elevating of influences to be social — to communicate the year's experience, and receive an ample return from the memories of thousands.

The reasons calling upon the other members of society to be social are liliputian when pitted against those which should prompt the farmer to frequent interchange of thought, feeling and experience. The follower of no other calling is so liable to fall into narrow, dogmatical habits, keeping unchanged from year to year, until they mark his identity as unmistakeably as his own physiognomy, and chain him a slave to routine and thought, sympathy, action, impulse, observation, and labor. Social intercourse would work a change in the farmer in this respect, softening his prejudices, increasing his knowledge, and improving his manners.

The obstacles in the way of the same degree of sociality being established among farmers, which is so easily and almost necessarily maintained among trades and other business men, are very considerable. But the advantages resulting would more than pay the expense. Town and county fairs, held no oftener than at present, are doing much in this respect, and will never come off debtors to those whose interests they profess to serve.

The subject under consideration is really of colossal magnitude in its influence upon farmers, and would result, if carried to the extent it should be, in unlimited advantages to the farmer himself, as well as his business. To be social is the imperative demand of his interest, his intelligence and his mutual duty to his fellows. W. H. GARDNER.

Amboy, Ill., Nov., 1858.

PLAN OF A SIDE HILL BARN FOR CATTLE, HORSES AND SHEEP.*

The accompaning plan is designed for a side-hill barn of convenient size for a hundred acre farm, 42 by 60 feet, the basement story to be built on both ends and one side, of good stone wall, ten feet high; the other partitions to be of wood, with a space of two feet left open above, behind the stable to secure good ventilation and pure air.

The barn is divided into equal spaces of fourteen feet between the posts one way, and fifteen feet the other way, the front or entrance to the basement to be on the south or shed side, fifteen feet off the east end to be partitioned for sheep and calves, (fig.3,) with rack and troughs through the centre, the space (marked 8 in the annexed plan) for young calves, or ewes and lambs. The remaining forty-five feet to be left open fourteen feet deep in front, for storage of manure and space for cattle to run in, as it is better to turn them out after feeding in mild weather. In the centre, back from the open space, are enclosed room for six cows and a yoke of oxen. (Fig. 2.) The mangers are three feet wide, the floor level about five feet where the animals stand, with a drop of four or six inches deep, and two feet wide behind for the manure, and back of that a four foot walk, raised to the level of the main floor, for convenience in milking, &c.

On the west side of passage to feed-rooms is the horse stable, (1,) for three horses, with door-opening to passage, open space and feed room back. The feed rooms are 14 by 45 feet, ample for root bins, boxes for meal or cut fodder, with space for straw and root cutter. Water from the cistern, (C,) can be had through the wall by pipe or syphon in the feed room for horses, thus making it very convenient for feeding. It would be better, perhaps, to cut the fodder above on stormy days, and store it in the bins below through the shutes in the floor, to be ready for use when wanted.

Stairs lead from the feed room to the main floor, which is designed to be all planked over in one unbroken floor, doing away with the unnecessary divisions between the floor and bays, and being much more convenient for other purposes when empty. The barn can be entered and filled either from the ends by driving through, or by a door or doors on the north side, the scaffolding being arranged in such a manner as to be easily changed from one plan to the other by arranging the girts in a proper manner, about twelve feet from the floor, opposite the door.

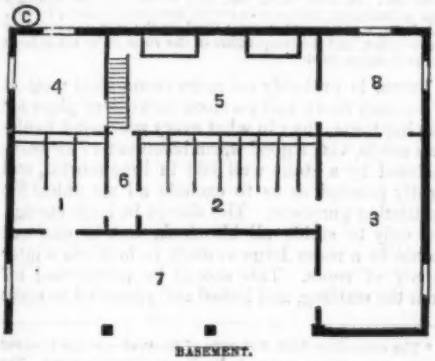
If the common traveling threshing machines are used, and the straw is wanted in the barn-yard, the granary, (G) may be put in the corner on the other side of the stairs, and two double doors put in the north side for greater ease in filling; but the better way is to use the railway powers for threshing, and leave a space through the middle of the barn from end to end, and also a space of fifteen feet across one end for straw, so that in threshing, an elevator may be attached to any machine for carrying and dropping the straw on a movable inclined plane, to direct the straw to either side and prevent the workmen from standing in the dust.

*The Committe award a prize to both of the accompanying plans and descriptions of a Side Hill Barn.

SIDE-HILL BARN, FOR CATTLE, HORSES, AND SHEEP.

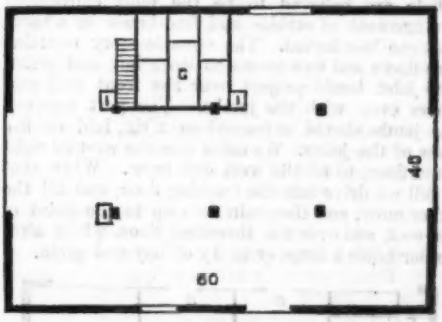
Should this plan be adopted, it would be well to have a door above the main doors of the barn to let the dust escape, as shown in elevation.

This barn is capable of holding all the grain and hay usually grown on a hundred acre farm, the posts being eighteen feet above the walls. Girts or beams should be put in two feet below the plates, to prevent the building from spreading, and girts and joists at eleven or twelve feet above the floors, opposite doors, where necessary to drive in loads only. In all cases, scaffolds should be made as low as convenience will admit, and the frame should be generally strong and the roof well supported. There should be eave-troughs to conduct the water to the cisterns, windows over the main doors, and the ventilator on the top in the centre, as shown in the plan.



BASEMENT.

The sides may be covered with matched pine and painted, or rough boards battened with three inch strips. The cost would vary according to location and price of lumber and finish, from $500 to $1,200.



MAIN FLOOR.

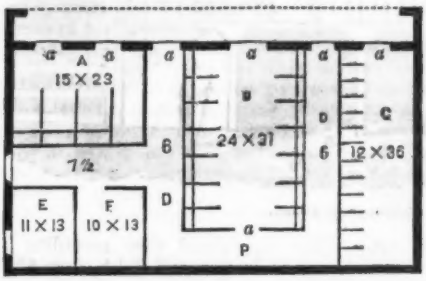
DESCRIPTION OF PLAN.—*Basement*—1, horse-stable; 2, cow stable; 3, room for sheep; 4, feeding-room for horses; 5, feeding-room for cows and sheep; 6, passage; 7, open shed; 8, calves pen; *c*, cistern. *Main Floor*—I, I, I, traps for hay and straw; *g*, granary.

* * *

THE site for a barn on a hillside should not ascend more than one foot in ten. The ascending grade should be northwest, or in the direction of the prevailing winds, so the barn will protect the yard from winds in the winter, and shelter the cattle from cold. The barn should be built of stone, and for one hundred acres of land, should be 45 by 75 feet. The cellar or stable should be 8 feet high to joists, the hay and grain mows 19 feet to plates,

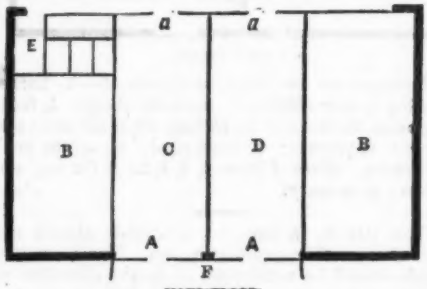
and threshing floors, (I would recommend two,) 16 feet wide, as long as the barn is wide, and 12½ feet high to scaffold overhead, from which will be 6½ feet to plates. The cellar should be dug so the front or stable door-sills are rather higher than the natural ground, and dug out, giving the stables six inches descent from back to front. Make the end walls 45 feet long, the front jamb 3 feet wide, the walls 2 feet thick as high as basement, then 20 inches to plates; from thence to peak of roof 18 inches. Set the front wall back 5 feet so as to project the upper barn over the stable doors, and afford a dry walk in wet weather. There should be two horse stables, three cow stables, or two with one of them double, with the necessary entries and passages to pass to all of them without going out of doors.

As represented in the following ground plan, the size of stables and entries are given. *a*, *a*, *a*, &c., represents the stable and entry doors. The



BASEMENT.

whole are believed to be the most convenient arrangement of stables and feed-house in a barn, that can be adopted. The seconds story contains two floors and two mows to store hay and grain. The joist should project over the front wall and doors even with the jambs. The part between the jambs should be framed on a sill, laid on the ends of the joists. We drive into the west or right hand floor, to fill the west end mow. When that is full we drive into the treshing floor, and fill the other mow, and the grain floor up to the point of the roof, and over the threshing floor, which altogether holds a large quantity of hay and grain.



MAIN FLOOR.

From the hay mow next the threshing floor may be cut off 10 or 12 feet for granaries—very convenient to floor and to load from a front door on a wagon. In this should be a window with a few lights. There should also be a window over each overshot door, to light the threshing floor. With us the hay is unloaded by horse-power on hay drag, and carried up to the peak of the roof before it is discharged.

The whole should be permanently built and roofed with slate. Of such barns, we have many in Chester and Lancaster counties, Pa., smaller or larger, in proportion to the size of the farm. A barn as described, cost, the past season, $1,600.

The stables should be ventilated by openings over the stable and entry doors. The doors may be double or in two parts, and in summer have the upper door open. The doors may be left open by having bars across the door-ways.

This barn can be built on level ground as well as a hill-side, only the bridge-way will require much more filling up to drive into the floor.

To get the hay into the feeding-entries out of the several mows, there should be funnels from the mows to the entries, at such place as convenient. The stable floors should be earth, the floor of feed-house mortar laid on fine stones; all to prevent a rat harbour in or about the barn. The feed-house is very convenient to the horse and cow or cattle stable, out of which a stair leads up to the threshing floor, bringing all the principal parts of the barn in close proximity. The two upper barn floors should be two inch plank; in the treshing floor they should be jointed, grooved and tongued; in the others, they may lay loose, and not jointed very close; the two mows floored with inch boards loose. The upper barn may be built a frame as well as stone; but frame, and particularly the sills, will decay with the roof of shingles. A stone barn will outlast six or eight shingle roofs; hence the necessity of covering with slate. The barn will last half-a-dozen generations, always good.

DESCRIPTION OF PLAN.—*Basement*—A, horse-stable; B, double cow-stable; C, cattle or sheep pen; D, entry; E, horse-stable; F, feed-house; P, passage. *Main Floor*—A, A, large barn doors; *a*, *a*, front overshot doors; B, B, hay mows; C, threshing-floor; D, grain-mow or second floor; E, granaries; F, bridgeway.

B. F. BARTOLET.

PRESERVING ROOTS FOR WINTER USE.*

"On the best and most economical plan for preserving roots for winter use, reference being had, first, to keeping and feeding a large quantity, say from one to several thousand bushels; second, to its being a permanent system; third, to the easy access during cold weather, and the temperature of the roots so as not to be so cold as to injure stock."

THERE is probably no more economical method of keeping roots, and no more convenient place for keeping them, than in what every successful herdsman needs, viz., a good warm basement to his barn, enclosed by a stone wall laid in lime mortar, and tightly pointed so as to exclude all air unless for ventilating purposes. This should be large enough not only to stable all his stock, but in one end should be a room large enough to hold his winter supply of roots. This should be partitioned off from the stabling, and lathed and plastered to make

* The committee think that none of the twelve essays received on this subject quite come up to Mr. TAYLOR's requirement. The three following are all excellent, and they award a prize of a dollar book to each of them.

it warm, Around this should be erected a tier of shelves for storing the roots. These may be made of scantling, 3 by 3 inches, the length as high as you wish your shelves. Into these may be framed cross-pieces, 2 inches square, 3 feet long, and 2 feet apart. These should be set up at a convenient distance apart to support the shelves, which are to be laid upon the cross-pieces. There should be a door from the stable to the root-room, and a window or windows to let in light, which should open for ventilation in mild weather.

The object of shelves is to prevent a large mass of roots from coming in contact, obviating the danger of fermentation and decay. Roots, if left out as long as will be safe from frost, and properly dried in the sun, may at once be put upon the shelves with safety, if proper attention is paid to ventilation during any warm weather that may follow. For want of shelf room, they may be thrown upon the ground between the shelves to the depth of two or more feet, for early using. For late spring use, and want of other storage, roots may be put into pits through the winter.

No one will think of feeding even a limited quantity of roots without a root cutter, which will cost but a few dollars.

Roots, to keep best, should be kept as near as possible to the freezing point without quite reaching it; and in fact a slight "nip of frost" does not seem to materially injure carrots. They would be best suited to feed stock at a temperature of 60°, though they do not injure stock at a much lower temperature. This could only be obtained, during the winter, by artificial heat. For this purpose, a stove could be put in the root-room to raise the temperature a little, and to prevent freezing in extreme cold weather. O. S. C.

Trenton Falls, N. Y., Dec., 1858.

In preserving and storing roots for winter use, I prefer a cellar under the barn, or building intended for stabling cattle, of the size of the building, dug, if the ground will admit, six or seven feet deep, and built up of stone or hard burnt brick. The inner part of this basement I would use for a root-cellar, and the outer part to tie up the cattle in. By this plan you have the cattle and roots in one building on the same floor. You can have divisions in the root cellar to store all the different varieties of roots, so that you can feed any kind you wish. You can feed them to the cattle with comfort and without going out into the cold. Roots can be put in easily by slides from the outside of the building, or by a trap door from above.

As many may wish to raise and preserve roots whose buildings are already put up, a building may be put up above ground expressly for a root-house, placing it where it will be most convenient to where the roots are to be fed. Wood may be used for the walls of a root-house; yet, if wished to be durable, they ought to be of stone or brick. After the walls have been raised, rafters about six inches deep should be put on and closely sheeted with inch boards on the *under* side; then, before or when the outside sheeting is put on, the vacant space between the outside and inside sheeting ought to be carefully filled with dry sawdust or spent tan-bark, and the whole shingled over, thus forming a dry, frost-proof roof. If the building is much exposed to cold winds, the walls ought to be banked up outside with earth. The door will be most convenient if placed in the end of the house, and there should be double doors, with a space of three or four feet between them, as that will more certainly exclude the frost and render easy access; or, the door may open into the stalls where the roots are to be fed.

If the root-house or cellar be small, the roots may be put in a pile without any danger; but if the quantity is large, care must be taken to have them thoroughly ventilated to prevent heating, sprouting, and decay. If the root-house is large, a passage may be made through the middle of the building, and the roots filled in on each side and across one end. This plan takes up much space. A simple method of ventilation is by a square tube, six to nine inches in diameter, perforated with holes placed so as to be in the center of the pile of roots, with a branch tube leading to the top of the roof. The aperture in the roof should be closed as soon as the weather is cold. The perforated horizontal air-box will be most convenient in sections which can be removed as the roots are taken out. Care must be taken to have the roots kept dry, as wet and damp soon cause rapid decay.

Roots can be safely preserved in pits, if well covered with straw and about a foot of earth. If not wanted till spring, they are as well in pits as in a house, but are inconvenient to get at in frosty weather. W. E.

Cobourg, C. W., November, 1858.

Through the long, severe winters, it is evident that stock must do better if well provided with plenty of roots. To secure these, requires some skill in constructing a building so as to have free access to them through the winter. A barn on a side-hill, if possible, is best, having all the cattle underneath, with a root-house behind, and doors opening from the cattle into the house. A barn 40 by 60 feet will hold four rows of cattle containing fifteen head in a row, seven double stalls and one single one, allowing four feet for each animal. The two ends may be fitted up for cattle, and the middle apartment for sheep, with a root-house behind, 10 by 30 feet, or larger if desirable. This makes a very convenient and warm place for cattle and sheep, and a root-house holding 3,000 bushels. It may be enlarged to the length of the barn if necessary. The stalls should be on the sides of the barn, fifteen feet wide, heading toward the center. In front of the stalls may be passage-ways four feet wide, leading from the root-cellar, around the center space, from which the feed can be placed in the troughs on either side. Hay, straw, &c., can be put down through trap-doors from the threshing-floor above.

A very good plan, where only two or three feet of side-hill can be obtained, is to construct the barn with a substantial eight foot wall, with a stable for cattle on the sides, and a root-house in the center. In this case the root-house will be above the ground and exposed to frost, unless made with double walls and filled in with sawdust, or spent tan bark. Any space not occupied with stalls, can be profitably used with movable pens for calves or sheep.

Neither of these plans are adapted for horses,

which, I think, are better in a wood building entirely above ground.

I have had much experience in pitting roots, and always find much waste, either with frost or by heating so as to rot. If any one raises and feeds many roots, I think it will pay them to build root-houses, and have them large enough so they can turn the roots some winter day, if they find them getting too warm. Airing makes them keep better. I have 8,000 bushels of Swedes this year all dug and housed, and my root-houses all open into sheep and cattle sheds, so we are not exposed to cold, and have no drifts to cut through to feed the stock, and my roots are always in good condition to feed.

A stone root-house can be built along side of any cattle shed, with upper floor covered with tan bark, inside lined and filled in with tan bark, with an entrance door into cattle and sheep shed, and roofed and shingled, making a durable structure, and one that will not wear out, always ready every fall when roots are fit for gathering, which should always be got in on a dry state to keep well.

Guelph, C. W., Dec. 1858. J. KIRBY.

REMARKS.—The foregoing essays will be read with interest, and it is to be hoped the importance of the subject will induce others to give their brother farmers the result of their experience in growing, storing, and feeding roots. More information is needed as to the different kinds of roots proper to be grown, their value for food, and the best manner of feeding them. EDS.

HOW SHOULD WE IMPROVE OUR HIGHWAYS.

This important subject has not been sufficiently discussed heretofore. All acknowledge that our highways should be improved, and in the right way.

Which is the right way? Here is a question which will call out many different opinions. In considering the subject many things must be considered. First, the condition of the soil; second, the hill and the valley; and third, how should a road be made on level ground. Turnpiking has gone into disuse in many localities, and yet it is, in many places, deemed necessary to throw up the highways in this form. In swamps and such localities, turnpiking is thought to be the more judicious mode of making good roads, and keeping them passably dry. This can only be done by a thorough system of ditches and draining.

I propose to give my plan of making a road in soil where it is apt to cut up, and become rutty by reason of wet, and one which trial has shown to be the most durable and cheaply made road—all things considered—now in use. Open a trench in the centre of the highway from nine to twelve feet in width and one foot in depth, with plow and scraper. Stone being plenty in most every country, fill this track with small field stone, and pound down the surface with hammers smooth and regular. Having done this, go to a gravel bed, (most every neighborhood having one,) and draw on to the stone bed thus prepared from five to eight inches of gravel. Level down, and make the track on the whole a little rolling, that the water may run off. The dirt that was plowed and scraped out of the track, can now be hauled up on each side, and rounded off, to correspond with the gravel, scooping out the gutter to form good drains on each side. This kind of a road—and we have thoroughly tested it here—will last for years. Its cheapness equals its durability. Its smoothness at most all seasons of the year—in wet or dry weather—is unequalled by any other kind of road in use. In clay ground, it is better, far better, than plank; and when once made, you need not trouble yourself about repairing it once in a decade. If the gravel wears out, as it may from constant and long use, replace it in quantities sufficient to keep the road smooth.

On gravelly soil, not liable to cut up, we use gravel from a clean bed, and draw on a sufficient amount to make a good round track. In this kind of soil stone need not necessarily be used. In sand beds the stones may be used for a foundation, and then covered with gravel, as above described.

Now let us look a little to our hills, &c. We have a good deal of rain in most all countries. Our hills, therefore, are apt to wash in consequence. The only sure way of managing them on a permanent plan, is to put in stone as I have already described, and cover with gravel, not forgetting side ditches; in addition to which water breaks may be made every eight or ten rods. These need not be large, and everybody knows they will turn off the water in an effectual manner, and thus preserve the road. Simply turnpiking a road on a hill, does not seem to amount to much, as natural soil will wash away about as soon as it is thrown up.

There is a radical defect in our system of road making, and it wants improving about as much as anything in the whole range of rural economy.

A road made after the above plan will not cost much beyond $2.75 or $3.00 per rod; and every district, therefore, can build many rods annually.

This plan is growing more in public favor, year by year—at least with us; and as time rolls on, I believe people will begin to appreciate the value of stone foundations in our roads, and will build a less number of rods, and make those few rods well, so that time and use will not prove their ruin. T.

RAIL vs BOARD FENCES.

RAIL fences occupy, on an average, eighteen feet of land, board fences only six, in plowed land. Rail fences are not so objectionable in meadows and pastures; still there is half to two thirds difference in favor of board, and full two thirds in saving of material. Timber can be made into board fences that cannot be used in rail fences. Board fences withstand winds which rail hardly can, even staked and capped. Some may object that frost pulls up fence posts, and they cannot be put up as easily as to lay up rails.

I will give a description of my board fence, manner of building, &c. I cut logs for boards of chesnut, black or white oak, in fall or winter. For each rod of fence it requires one board each ten, eight, seven, six and five inches in width; also one five inch board extra for battens on every four posts or two rods of fence. Fence posts made of good white oak, sawed 5 by 6 at the bottom, and 2 by 5 at the top, leaving them 5 by 5 where they

come to the top of the ground. For every three rods of fence I use one 4 by 4 scantling, twelve feet long, sawing the same in six pieces, two feet each, which I use as follows: Halve each post at the bottom 4 inches up, and make a dove-tail. Lay it on the two feet piece, in the middle, and mark the dove tail, taking half of that, then drive it into the post, forming a sort of foot. One hand will bottom fifty posts a day, and it can be done in the barn in the winter and on wet days. I find that the holes can be dug two feet long and two feet deep, as easily and as quickly as if only eight inches square. Such a fence here costs about 87½ cents per rod, and will last fourteen to twenty years, if the posts are well seasoned previous to setting, and a coat of coal tar put on six inches up, and down at the surface of the ground. This will not pull up by frost, nor lift with wind. Mine, seven years old, is firm as can be. Seasoned posts will last double the time of green ones. Coal tar can be got at gas works at $1,00 per barrel, and should be put on hot. A farmer that can make a hay rack with a good saw, square, chisel, and hammer, can build such a fence. I use the five inch boards for caps and battens. The fence is four boards high, and four feet four inches high. I cut logs for posts thirteen feet long, and saw in two at the mill; fence boards, sixteen feet, six inches, and one inch thick. Brash white oak is the best.

DAYTON SIGLER.

CONSTRUCTION OF STONE WALLS.

To construct a good stone wall is by no means a difficult task, and yet a large share of those we see are by no means what they should be, but tumble-down ricketty affairs, only an apology for a fence.

To erect a good stone fence it is necessary except on ground not affected by frost, to dig a trench twelve to eighteen inches deep, and as wide as the base of the wall is desired to be. For a half wall, two feet; and for a four and a half or five foot wall, two and a half feet wide. This trench should be filled with small stones pounded down, and made level with the ground. The frost will not affect such a foundation injuriously. Where the foundation of large stone is laid on the top of the ground, or near the surface, thawing affects it badly by occurring on one side before it does the other, especially in walks running east and west, causing them to lean to the sun, and soon fall down in that direction.

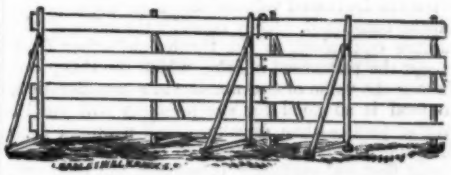
On the foundation of small stones, commence with the largest, putting them lengthwise across the wall, so as to bind it well and firmly together. If stones are not long enough to reach through the wall pretty often, use those that will lap on each other and form binders, as in this binding will depend, in a great measure, the strength of the wall. In making wall where the stones are all small, use is made of small slats of cedar, chesnut, or oak, for binding the wall, and experience has proved them to answer a good purpose. The wall should have an equal batter, or draw in with an equal slope on each side, so as to be not more than ten or twelve inches wide on the top. A full wall should be about five feet high, and where practicable, have a course of large stone firmly placed on the top, large enough to cover the width of the wall. Many walls are built about three and a half feet high, with a good black ash, or other straight pole, laid on the top, over which, at proper distances, stakes are firmly set in the ground, crossing at the top, into which rails are placed, making a fence much preferred for some purposes. Sheep and cattle never get in the habit of running over the wall with a top rail, and are often troublesome where the wall is whole, unless quite high; and sheep are often getting over the highest stone fences.

As a finishing stroke to a wall, bank it up with the earth taken from the trench, and plow a furrow on each side, where practicable, placing the earth against the wall, and cleaning out the furrows to serve as ditches to carry off the surplus water.

Stone fences constructed in this manner may reasonably be expected to remain permanent for years.

M. T.

Washington, Co., N. Y. Dec. 1858.



A PORTABLE FENCE, NOT PATENTED.

A SUPERIOR, cheap, portable fence, may be built in the following manner: From 3 by 3 scantling make a sill and upright in the form of a carpenter's square, (fig. 1,) by halving them together at the corner and nailing with two nails. The upright may be four feet or more long—as high as you desire the fence; the sill, or bottom part, about half that length. The two may be rendered very strong by a brace of 2 by 3 scantling, any desired length, either halved on, toed in and nailed, or by mortising, as you prefer. This forms the post. Set these up and nail on boards such distance apart as you desire, having three post to each length—two on one side, within six inches of the end; and one on the opposite side, in the center of the panel. Of these, as many can be made as you like, in the shop in cold and stormy weather. When you are ready to build a fence, the panels may be taken to the desired place, and put up, reversing every other panel, so as to have an equal number of posts on each side of the fence. The sills may be set on stone at each end, so as to keep them from the ground. Lap the ends of the panels about six inches, and put a wooden pin through both top and bottom boards, which will hold them firmly together, though it is an additional safeguard to drop over the top of the laps a clamp made of light band iron, in the form of a staple (fig. 2). This makes a very firm, durable fence, and may be easily moved by taking off the clamps and driving out the pins, with which it can again be put up when desired.

FIG. 1.

FIG. 2.

Lawrence Co., Pa., Dec. 1858. WM. RENO.

FATTENING SHEEP IN WINTER.

In fattening sheep in winter, the first thing to be provided is a *dry* yard with an open shed. Nothing is so injurious to sheep as wet quarters. When left to themselves, they always select the highest and dryest places in the field to lie upon. Racks and feeding troughs must also be furnished; and what is of equal importance, they must be filled with proper food. No fodder fats sheep like clover hay. If they could have some roots, so much the better; but sheep *can* be fattened, and rapidly and profitably too, without roots. A sheep weighing 100 lbs. will eat about three pounds of clover hay, or its equivilent, per day. It is well to let them have access to straw or corn stalks at all times, giving them hay night and morning.

One object in fattening sheep in winter, is to increase the quantity and quality of the manure. English farmers, who feed large quantities of oil-cake to sheep, consider it a profitable business when the increased value of the sheep pays for the oilcake consumed. They consider the value of the manure equivalent to the turnips and other food, except the purchased oilcake, which the sheep eat. Taking the value of the manure into consideration, no food is so good for sheep—none will yield a greater profit—than oilcake. Half a pound each sheep per day is a good average allowance, giving less at first and gradually increasing the quantity. If large mutton sheep, they may be allowed a larger quantity. Oats, peas, and beans, are also excellent for sheep, and so is Indian meal; but the manure made from the latter is not so valuable as from oilcake, peas, or beans. Clover, containing much more nitrogen than timothy or other grasses, the manure from clover hay is much the most valuable.

Sheep are timid creatures, and should never be disturbed by the presence of dogs, or in any other way. By eating snow, they manage to *live* without water, but they will not thrive or fatten well without a regular supply. A little salt should be given occasionally, but not in too large quantities. When they have oilcake and clover hay, little salt is required, as a considerable quantity is provided in these foods.

The coarse-wooled sheep, when well bred, will undoubtedly furnish more mutton for the food consumed than the fine-wooled sheep—and, other things being equal, would be the most profitable sheep for fattening in winter. But as the common sheep of the country can be purchased much cheaper in the fall than well bred mutton sheep, greater profit is often realized from them than from the English breeds. Mutton is much higher in the spring than in the fall, and the profits of fattening sheep in Winter depend as much on this increased value of mutton as in the increased weight of the sheep. It is doubtful whether we could afford to fatten sheep in winter, if we had to pay six cents a pound for the sheep in the fall and sell them for six cents a pound in the spring, depending on the increase of mutton and wool to pay for the food and trouble; but if we can buy at three cents and sell for eight or nine, the profits are very considerable. I gives these figures, not as actual representatives of what can be done, but merely to illustrate my meaning. I got this idea from the *Genesee Farmer* three years ago, and have since then purchased common sheep in the fall, at from $1.25 to $1.50 per head, and sold them in the spring at from $4 to $6, and have found the business a pleasant and profitable one. G. S. T.

Erie Co., N. Y., Dec., 1858.

MANAGEMENT OF FINE WOOL SHEEP.

Fine wool is an important staple of the United States, and it is well to examine the practice of the best growers, to see the mode of raising wool and breeding the sheep, so as to get the greatest weight of fleece from the food consumed, and the average cost of production. Nearly all our agricultural knowledge is derived, not from theory, but from the experience or experiments of judicious farmers and breeders; and for this reason, I say we must examine the practice of wool growers, in order to get at the best management of fine-wool sheep.

First, as to the breed. And here is some difficulty in deciding. Whether we shall get pure Spanish, or French, Silesian, or Saxony Merino sheep, is a hard question. So much depends on the breeders tact and facilities for selling off his surplus stock, that a breed good for one place would not be for another. In some sections, French Merinos could be profitably bred for sale and for wool; and in another, nothing but Spanish could be disposed of. The French Merinos have the heaviest fleeces; the Spanish have shorter legs and more barrel-shaped bodies; and the Saxony and Silesian, the finest wool. Either breed can be made profitable for the grower; and perhaps a small admixture of the French blood with the Spanish, would be as profitable as any breed, wool alone being taken into consideration.

It is requisite that the animal be covered all over with wool, and that the fleece be long and close, in order to get weight of fleece. It is also requisite that the animal be round, or barrel-shaped, and the legs short, as the qualities ensure ease of keeping—the shorter legged animal, *ceteris paribus*, eating the less. If the sheep do not possess these qualifications, then the breeder must give his entire attention to this subject—must procure the best rams for getting stock possessed of these qualities, and persevere, as did Bakewell, until he can not find better sheep than his own to breed from.

The subject of the care of sheep is the next to be considered; and this will do as well for mutton, or coarse-wooled sheep, as for fine-wooled sheep.—They should be kept in small flocks, in small pastures, and changed often from one pasture to another—should have access to pure water at all times, summer and winter—should be salted twice a week during the summer; but if the hay is salted in the mow, they do not require salting as frequently in the winter. Put the rams with the ewes in November, if the lambs are wanted in April—the earlier the better, as the lambs attain a larger size before the next winter. Feed the sheep on good hay, *in racks, under cover;* for by feeding under cover, in good tight sheds, *one-third* of the hay is saved—an important item in the cost of raising wool. Giving the breeding ewes clover hay, it makes them give as much milk as grass will. Give all the sheep, during the winter, about half a gill of corn (or its value in other grain) per day,

each. They winter better and their wool weighs more.

The lambs' tails should be cut off close to the body, and the male lambs castrated, by the time they are four weeks old. They bleed less and heal sooner than if left to a later age. They should have *small yards* in the winter, and should not be turned out to grass until the pastures have a good start. No more sheep should be kept than can be kept *well*. There is certain loss in trying to keep more than can be *well kept*.

The washing should be done well in running water, and the sheep should be shorn in about two weeks after washing. Washing and shearing both must be done in warm weather; it is cruelty to do otherwise. Get good twine, and do the fleece up compactly and neatly, and the crop will sell well, and pay a better profit for the labor than grain-raising or raising beef for New York market.

It costs per head, to keep fine-wooled sheep, about $1.50 per annum, washing and shearing included, provided hay is worth $8 per ton and corn $0.75 per bushel, salt $2 per barrel. A good flock will average about 5 lbs. of wool per head, and there would be from one-third to one-fourth of the flock that would raise lambs. One hundred sheep would yield 500 lbs. wool and 30 lambs, which, at the present prices, (37½ cents for Merino wool,) would be $187.50 for the wool and $60 for the lambs at $2 per head; amounting to $247.50. The total cost of keeping at $1.50 per head would be $150, leaving a net balance of $97.50, or nearly $1 per head. These figures are correct for a *good* flock of sheep in Western New York at the present time.

I have thus given the best manner of managing fine-wooled sheep *as derived from experience*, and have shown the probable profits to be expected from a *well kept* flock of *good* fine-wooled sheep at the present time. D. A. A. NICHOLS.

MANAGEMENT OF COARSE-WOOL OR MUTTON SHEEP.

Food and shelter are very essential in the management of any kind of sheep, and the sheep that are well provided with both, are very sure to do well, and without them they must certainly run down and become worthless. In fact, I have obtained more clear profit from sheep than any other stock on the premises. I have always found that the great success in raising lambs depended on the time I turned in my buck. I found from experience, that I had always been in too much of a hurry—had my lambs too soon. From the 20th of November to the 1st of December, is the best time to turn in. Then your lambs will come when there is plenty of grass; and then you will have plenty of milk for the young lambs, and you will find them large, strong, and fat, and they will grow rapid enough.

Lambs that are docked and castrated the first week of their existence, will do the best; for if left until one or two months old, the use of the knife will stop the growth, and sometimes cause death in a few days. Young lambs seldom mind the knife more than one day.

To keep the ewes strong and healthy, they should be separated from the rest of the flock, and fed some grain—about half a pint each per day of corn and oats in equal parts, with a few pine boughs, or a little tar laid in the feeding trough will answer the same purpose. Begin to feed grain about the 15th of February, and keep it up until there is a full bite of grass. Then your ewes will go through strong and hearty.

To mark sheep well, you must cut out the initials of your name in the end of a block of wood, dip these letters into some red or black paint, and apply it on one side the rump of the ewes, and on the shoulders of the male sheep or weathers; and if you have dry ewes and fat weathers, which you intend to put off, you may apply the marker on the opposite side. Then you can tell at a distance those you want to pick out of the flock.

To keep off dogs, put on one good plated bell for every twenty sheep, and you will escape the depredations of the canine tribe; for let an old dog start up a good loud bell, and he will drop his tail and leave forthwith, for he wants to go it on the sly. But sometimes a young fool of a dog will chase after a bell, and bark too. A. L. SMITH.

Tioga Co., N. Y., Nov., 1858.

FINE VS. COARSE-WOOLED SHEEP.

"Which is the most profitable breed of sheep, the fine-wool or the coarse-wool mutton breeds?"

Taken literally, this query divides sheep into two classes—Merinoes and other sheep—and I have no hesitation in saying that the coarse-wooled sheep are the most profitable. If, however, the first half of the sentence be taken as a text, the question becomes much more difficult to answer in a country where the soil and climate are so various. No particular breed will suit all localities; and the kind that is the most profitable in one place, will prove the reverse in another. Where the climate is mild, the range extensive, and mutton in little demand, of course the Merino must be the most profitable. Where the soil is rich, the pasture luxuriant, and proper shelter and winter food are available, the Leicester breed and its grades will be found the most profitable. Where the soil is poor and hilly, the South-down breed and its grades will be the most profitable; and more particularly in localities where the quality of mutton is appreciated. In general, however, cross-bred sheep are the most profitable; and there is no better cross than that between the Leicester and the Cheviot—combining a large quantity of good mutton with a heavy fleece of wool, besides being much hardier and better breeders than pure Leicesters. But as far as my experience goes, the most profitable sheep are of no breed. Buy poor and interior ewes, (of the native breed, if possible,) cross them with the best Leicester or South-down rams, according to their roughness and other qualities, and they will pay from 50 to 100 per cent. per annum or more. This is simply taking advantage of the established maxim in breeding, that the first cross is the best. You thus obtain an increase in mutton of from 20 to 30 lbs., and an increase in wool of from 50 to 100 per cent., besides a great improvement in the quality of both.

To sum up,—in order to keep the most profitable kind of sheep, every man must decide for himself, by comparing the qualities of the different breeds with the nature of the soil and climate, nearness to market, demand for wool, etc. J. C.

Orillia, C. W., Nov., 1858.

ON THE MOST ECONOMICAL WAY OF WINTERING HORSES.

In response to your call on this subject, I offer the following suggestions as the confimation of experience.

The quantity of food which any animal consumes and seems to require, is no doubt, to a great extent, the result of habit. This no one will question with reference to man; and, if true in one part of the animal economy, may it not be so throughout the whole? It is my belief that a horse or an ox, fed irregularly and with promiscuous quantities—all he will dispose of,—eats more than nature requires and more than she can properly appropriate. The overplus is rejected and thrown off by a prostrating and debilitating effort of the system, and is worse than wasted—is actually pernicious.—Enough, is the point to be sought in the supply of food to any and all animals. Regularity, also, as to time, quality, and condition of that food. Frequent changes of feed are to be avoided.

Cut feed, so called, I regard as best adapted to horse-keeping, both as regards economy and the wants of the animal. Of course, the amount and quality must be modified by circumstances. The age, size, condition, former keeping, and present use of the animal, must be considered, in determining how much or how little is required to keep the beast in good condition. If a horse is to labor, he needs more sustenance than if he stands idle, though not so much more as is sometimes supposed. A man in health requires and uses about the same quantity of food, whether he works or plays; and this principle guides me in the care of my horse. The same quantity and quality, whether he works or not, given at about the same time each day, keeps him always in condition for any service required, besides conducing to his health and soundness. At this time, I am keeping an eleven hundred horse on three bushels cut hay and nine quarts of shorts daily, wet and put before him at regular intervals—morning, noon, and night,—and though he is used considerably and for various purposes, he gains in condition constantly.

This method I have tried with a number of horses, in the last fifteen years, with the same satisfactory results. I once kept a nine hundred horse three months on ten hundred pounds of hay and five bushels of corn meal, given cut, wet, and mixed, and found him some pounds heavier at the end than at the beginning of the time.

Carrots, given once each day, instead of the meal, I have found satisfactory; and my impression is, that this root is not properly valued as food for horses, and perhaps cattle also.

In my opinion, if the regimen above suggested were to be adopted generally by horse-keepers, we should have fewer horses affected with heaves and otherwise defective. Over feeding with dry hay is more frequently the cause of heaves than all other causes combined. But it is objected that it is too much work thus to prepare food for horses. With such objectors I have no argument or patience to waste. A person of properly regulated habits always finds time and a willingness to do what ought to be done, while laziness never wants an excuse for negligence.

E. INGHAM.

Springfield, Conn., Nov., 1858.

ON THE ADVANTAGES AND DISADVANTGES OF GRAIN DRILLS.

Experiments thus far with grain drills do not seem to settle the question of the propriety or impropriety of their use. So far as I have noticed and learned from experimenters, about as many have been disappointed in their expectations of benefit from their use, as have had their hopes realized; and I do not doubt that positive benefit and injury have been the result of different experiments. To settle this question, it seems necessary to look at the laws of germination and growth.—Every plant has its crown, or the point where the roots and top unite. This is at, a little below, or a little above, the surface of the earth, according to the habit of the particular plant. In grains this point is one-fourth to one inch below the surface. In the turnip, carrot and common beet, this is in most kinds at the surface; in the mangel wurzel and some kinds of radishes, from one to six inches above. The seed having been deposited deep, or shallow, makes no difference in the position of the crown when the plant is matured. The habit of the plant is to send its roots down and its top up from the seeds; and it would seem that the proper place to deposit the seed, is where the habit of the particular plant places the crown. This is doubtless correct in theory, for grains and all plants in which the crown becomes permanently fixed. In a few plants, like the wurzel, the crown rises with the growth. Such cannot come under this rule. For the germination of seeds, air, moisture, and a certain degree of heat are necessary. At the time of seeding winter grains, the soil at the point where the crown is to be, is often too dry, and the seeds, if planted there, will not grow till after it rains. If you then plant them deep enough to reach sufficient moisture, they may be so deep, or the earth so compact, that sufficient air cannot reach them; but if sufficient air, moisture and warmth reaches them at, say four to six inches deep. a temporary crown is formed at that point till the top reaches the sunlight, when a new crown is formed at the proper point, and the old one with its rootlets abandoned to decay. To make this change there must be some expenditure of vital force, and the plant more or less hindered in its growth. It is important, in most cases, that seeds germinate soon after planting, and it is a question for the farmer to settle in his own mind, at that time, how deep to plant. If there be sufficient heat and moisture to start the plant at once, there is no question in my mind that the seed should be put at the crown point; but if too dry and sufficiently mellow, the question comes up whether to plant shallow, and wait for rains, or deep and submit to more or less loss of force. In sowing broadcast, especially upon furrows, the seeds are deposited at different depths—some at the proper depth, and some not, and some generally fail from being too deep. All seem to admit that more seed is necessary in sowing broadcast than in drills. Why is this, except that in the former case some fail from being at improper depths? The advantages of drills, therefore, are that, as you can guage them to any required depth, you can take into consideration all the circumstances of the case, and sow more understandingly. The disadvantages are that if you disregard all conditions of soil,

depth, &c., you may sow all your seeds at improper depth, while if you, under the same circumstances, sow broadcast. some of your seed will be pretty sure to be right. S. B. P.

Gorham, Ontario Co., N. Y., Nov. 22. 1858.

ADVANTAGES AND DISADVANTAGES OF DRILLING WHEAT AND OTHER GRAINS.

The Advantages of Drilling.—It is an established fact that the small grains require to be planted at a depth not less than one inch nor more than two inches to insure germination and growth. If planted deeper, the seeds do not all grow; and if less than one inch deep, they are liable to be exposed to the depredation of birds, fowls or vermin, or to become desiccated, and the germ thereby killed. Experiments and experience have both shown that the seeds of all the cereals grow the most readily and surely at an average depth of one and a half inches. In order to insure this depth of planting, grain drills or plows have to be resorted to; but it is very difficult to set a plow or gang of plows for so shallow a furrow, and in consequence, grain drills, if well made and of proper construction, are the only reliable means for planting at a uniform depth. The drill also covers every kernel, giving birds and vermin no chance for depredations, and, of course, requiring less seed to be sown. Indeed, most farmers who use drills, say the saving in seed pays the cost of drilling.—Furthermore, the seed is left in the bottom of parallel furrows, and a small ridge is thrown up between; that is worked by the action of the frosts of winter over the roots of the grain, thus preventing winter-killing. Grain can be sowed with a drill as well during high winds as when it is calm; thus rendering the farmer in a greater degree independent of the weather. Lastly, but not least by any means, in order to drill in grain well, the land must be in good tilth, well plowed, and thoroughly harrowed. No half-way work will do; for if the land is not thoroughly pulverized, the drill will not cover the seed, and the labor is lost. Therefore, drilling, by covering the seed at a uniform depth, by covering all the seed, by not permitting it to be blown about by the winds, by preventing winter-killing of fall grain, and by requiring good cultivation of the soil, preparatory to sowing any kind of grain, is the best manner of sowing the cereal grains.

The Disadvantages of Drilling.—After the land has been harrowed and plowed, one way, by sowing the seed on broadcast, and then cross-harrowing, there is a saving of time, as when the harrowing is finished the work is finished. In the spring of the year it very oftens happens that by waiting to drill after harrowing both ways, a rain comes on, and the grain can not be sown for several days; whereas, had it been sown broadcast, it would have been up. A week in the spring makes a great difference at harvest. Often a field sown a week before another yields double the crop per acre, *ceteris paribus.* If winter grain be sown broadcast on well-drained land, it will not winter-kill.

Ergo, drilling is often a positive disadvantage in sowing spring grains, and of no material advantage in sowing winter grains on well-drained and mellow soil.

These are the advantages and disadvantages of drilling, according to my own experience and that of my neighbors. D. A. A. Nichols.

Chatauque Co., N. Y., Nov. 1858.

WHEAT FARMS FOR DIARY PURPOSES.

"Wheat failing, can farmers on the same lands make the diary business profitable?"

They certainly can, at the present price of diary produce. There are not many wheat lands, or at least few of what were once considered good wheat land, but will bear at present fair if not large crops of grass for pasturage in summer, or to be cut for feeding in winter. The raising of wheat for a long time upon the same land, has removed the necessary constituents from the soil for its full perfection; consequently, the crop has in a measure failed. The feeble growth of the plants, owing to the unfitness of the soil, invite, as it were, numerous insects, which prey upon and destroy what little grain there otherwise would have been.

Now, a farmer with say one hundred acres or more, who has always made wheat raising his business, finds it will no longer pay. He must change his productions, or his farm will prove unprofitable. He lays down his former wheat fields to grass, which no doubt, although they will not produce wheat, will produce fine grass; he purchases as many cows as he can keep well; and, as the saying is, goes into the diary business. The former wheat grower is now on a par with the farmer in some other section of country, who, from the nature of his soil, was compelled to adopt the diary business in the first place, except that perhaps his lands are better; for wheat lands, wherever I have observed any seeded to grass, always yield better crops than most of the lands that will not produce wheat. There appears no reason why the wheat grower may not make the diary business profitable. Butter and cheese bring a good price, and cattle are an average, though not as high as some time ago. And there is another advantage in the diary business. The manure from a large number of cows, if applied with judgment, would in a few years, perhaps, enable the diaryman to pursue again the business of a wheat-raiser.

When wheat has failed, an entire change in the rotation and cultivation of the farm is required, and no method can be pursued better calculated to produce as beneficial an effect as keeping cattle; and cows are by far the most profitable, as it enables the farmer to raise pork and young stock cheaper than he otherwise could; for the cost of raising calves the first summer, and keeping hogs, except a month or two in the fall, are almost nothing, taking out the cost of tending, and almost a clear profit. But no one doubts the profits of the dairy business; and why should not the wheat-raiser, with his good soil for all crops except of the wheat class, make his fine improved farm profitable as well as others, especially until, by a change of management, the former wheat producing condition of the soil is again produced, when wheat growing can again be resumed if desired? E. P. Parmer.

CULTIVATION OF WINTER BARLEY.

The soil most suitable for barley, is a good strong loam. If not naturally rich enough, it should of course be manured sufficiently to make it so. It should be well drained; for land inclining to be wet, and not sufficiently drained, will not pay to grow barley. There are, no doubt, a great many manures that will answer the purpose. Stable manure does very well; so does one or two good green crops plowed under, such as red clover, rye, &c. Of course they should be well rotted before the grain is sown. Oat stuble is perhaps preferable to most other ground for putting in fall barley, for various reasons, some of which will be explained in their proper place.

It is a very important matter that the ground should be thoroughly broken up and well prepared by the last of August, in order that the barley may be sown as early as possible in September, if seasonable, and if not seasonable, it should be put in the first suitable weather, as a general rule, (lat. 38°), we cannot sow too early in September; but when we have a very hot, dry season, it would be better to wait until about the 1st of October, when the sun has not so much power. It would be advisable to sow then without waiting longer, even if the ground is rather dry. The sun will not be likely to hurt it after that time.

There is quite a difference of opinion in regard to the amount of seed sown to the acre. Two bushels, perhaps, is as near right as we can come at it; and in this item we should be governed by the time it is sown. For instance, one and three-fourth bushels, or even one and a half bushels, sown early in September, will be equal to perhaps two and a half sown in November, for the very plain and palpable reason, that when sown early it has a chance to stool or spread out over the ground, but when sown late, it has such a precarious existence that it has no chance to spread before a great deal of it is thrown out by the frost, and perishes. After sowing, the grain should be harrowed, cross harrowed and rolled, the old furrows opened, or others made wherever it may be thought necessary, for it will not do for water to stand on it.

Barley has its casualties to encounter, as well as wheat and other grain. If sown before the 1st of September, there will be danger of its coming to a joint before the hard weather of winter comes on, and it may be ruined; but sown about the 1st of September, there is not much danger in that particular. It is true the insects, &c., may injure it more or less, yet all the injuries it is likely to sustain from those causes are not to be compared to the injuries received by the late sowing, from severe weather and other casualties.

The reasons why oat stubble is preferable, are that it is easier broken up, and we can make a far better job of it than we could with wheat stubble, or other ground that had lain twelve months without being plowed. But the most important advantage of all is that, when the barley is put in about the first of September, all the scattering grains of oats that are in the ground start and grow up with the barley, thereby helping to cover the surface of the whole field before the hard weather sets in; and when that does occur, the barley will be so firmly rooted and matted over the surface, that it will not suffer much by the weather. The hard weather will of course kill the oats, and in the spring the barley will have all the surface to itself, and a good start. J. L. K.

Jefferson Co., Ky., Dec., 1858.

RYE AND ITS CULTIVATION.

In 1856, the rye crop of the United States was estimated at 30,000,000 bushels, of which Pennsylvania produced about 12,600,000 — being nearly one half raised in the Union. It is also grown on the light lands of Ohio and Michigan. One of its advantages is the fine straw it furnishes for litter, thatching, and other purposes. In Pennsylvania, a large proportion was formerly used for distillation. In New Jersey and the Eastern States, most of the rye is appropriated to the more legitimate purpose of making bread. In the New England States it is second to the corn crop, and with that, enters largely into consuption as "rye and Indian" bread, — the real "staff of life" to thousands of the inhabitants.

Rye is very extensively cultivated in Europe; in Great Britain to a limited extent; but on the continent, and especially the northern portion, very largely, forming, as it does, the principal part of the bread of the people.

Rye succeeds best on rich, sandy loam. It prefers a light, dry soil, and will grow freely on light sands and gravels, where oats and barley fail. The strong clays in which wheat delights, seldom produce good crops of rye, as in such soils there is too much water; though loamy soils, on which wheat lodges, will sometimes produce a good crop of rye, its stronger stem enabling it to sustain itself under its luxuriant growth.

It has been remarked that four crops of rye do not exhaust the soil as much as three of wheat; and a successful cultivator of this crop gives as his experience, that when rye has been cultivated for a term of years upon the same land, and early clover sown upon it in spring and plowed in with the stubble in autumn at the time of sowing the next crop, the land, without any other application, has been kept in a gradual course of improvement and the yield of rye continually increase. This accords with my own experience; but from experiments made on my own farm, and others by my suggestion, I believe it much better to let the clover remain the second year before plowing under, as then it is more mature, furnishing a larger amount of green manure in a better condition for improving the land.

The preparation of the soil for rye is the same as for wheat; but as it is a less exhausting crop, pocrer soils may be employed. Pasture land or meadow, turned over deeply in the fall or early spring, and harrowed, or, what is better, worked fine with the gang plow or cultivator during the summer, will ensure a good crop. Many farmers are opposed to the application of fresh barn-yard manure to land intended for this crop, prefering short manure, or that it should follow some other crop that has been manured.

Rye is generally sown in the autumn, throughout the Middle and Western States and parts of New England, but in this Northern region, in

localities exposed to stormy northern winds, spring sowing is generally adopted. Winter and spring rye are different varieties, as of wheat. The proper time for fall sowing, in the States referred to above, is the middle or latter part of September. In this section, the last week in August is considered best, as the young plant starts vigorously, and has time to take firm hold upon the soil before the cold and frosts of autumn check its growth, enabling it better to withstand the thaws and frosts of spring, which occasion what is commonly called "winter-killing." When spring grain is sown, it should be done as early as the season will admit.

The amount of seed varies from one to one and a half bushels per acre, according to time sown, it requiring more for spring than for autumn sowing, as it tillers largely if it has time in the autumn.—In localities where the winters are comparatively mild, if its growth is luxuriant, it may be fed off both fall and spring, without injury. It is sometimes sown mainly for the purpose of furnishing early pasture, but is then sown much thicker.

Rye, like wheat, yields improved grain by being early harvested. It is heavier, and gives more and whiter flour. A saving of grain is made by early harvesting, as the waste from shelling is avoided. For bread-making, it is wholesome and palatable; and when mixed with Indian meal, and baked for a long time, it makes the famous "rye and Indian" or brown bread.

The common weight of a bushel of rye is from 55 to 57 pounds. FRYE, JR.

Andover, Me., Dec., 1858.

IS CORN A MORE PROFITABLE CROP THAN BARLEY IN WESTERN NEW YORK.

That corn is a more profitable crop than barley, it appears to me no rational man can deny. Taking into consideration the large amount of valuable fodder produced by the corn crop, it enables the farmer to keep more stock; and the more stock, the more manure; and the more manure, the greater crops — of corn and barley too.

An acre of corn stalks, if well preserved, are worth nearly or quite as much as an acre of clover hay; and the farmer who makes corn his principal crop can nearly dispense with his hay crop, there being no better fodder, either for cattle, horses, or sheep, than well-cured corn stalks.

Again, corn is a more certain crop than barley. Who ever heard of the total failure of the corn crop? There being so many varieties ripening at different periods from planting, it is suited to all seasons and nearly all latitudes. Those who are favorably situated, with a soil dry enough to plant early, can plant the common, large, late varieties; and there is no crop that is more certain. Those who are not so favorably situated, and, on account of a wet soil, have to plant later, can use the *King Philip* and other early varieties which ripen about the same time, and are very sure of a good crop. Again, if any must plant still later, (on account of a bad season, like the past,) they have the small yellow Canada corn, which ripens still sooner, and they can secure a good crop. A large amount of corn of these early varieties was not planted until the last week in June, the past season, and produced crops of corn that pay much better than barley in these uncertain times of crops and prices.

I would not be understood as recommending these early kinds upon soils that are warm and dry enough to plant the large varieties early; but the barley crop must be got in early, wet or dry, if we expect to reap a paying crop. And in this respect corn is again the most profitable; for nearly all soils will raise corn of some variety, while there are but few good barley soils.

It may be said that we must sow winter barley. But here again the same difficulty arises. We must have a dry soil or it will winter-kill; and dry soils, in this section at least, are "like angels' visits, few and far between." If perchance we have the prospect of a fair crop of barley — if it escapes all the casualties of wet, drouth, and weevil — a wet time about harvest will nearly blast all our hopes. A storm of wind and rain, as we often have at that season of the year, will beat it down, causing it to grow and turn black, thus detracting from its value and making more work to harvest it than it is worth. In fact, there is no more uncertain crop raised, in the whole catalogue of grains, than barley.

Newfane, Mag. Co., N. Y., 1858. C. C. WILSON.

CORN STALKS — CUTTING, CURING, AND FEEDING.

"On the best method of cutting, curing and preserving, and the most economical way of feeding corn stalks."

My plan is to cut twenty-four hills to the shock. I use a stay post with two arms, made from a light piece of wood, two and a half inches square, four feet long, with a pointed socket on the end. I bore two inch holes crosswise through it, near the top, put a couple of good rods two and a half feet long through the standard, making four arms. Set the post in the ground, cut the corn, and set an equal number of hills in each square. Bind the tops, withdraw the arms, reach in the hand, turn the post a little, and lift it out from the shock.—By this operation I have no hills of green corn to hinder the curing process; no hills to cut off when husking and drawing in. Stocks set up in this manner stand firmer than any other way I ever tried. I usually cut up corn the last of September and first of October, husking, as soon as dry enough, in the field, putting four shocks into one, until finished. I draw in on a damp day, and instead of packing or laying down n the mow, I stand them up, as closely packed as possible, butts down, and never have a mouldy corn stalk. I cut them for feeding, cutting a whole day at a time, sprinkling them occasionally with weak brine. When feeding milch cows, I put on a little bran, or mix in a few turnips or carrots. I have no waste, no long stalks in my manure, and my stock do full as well as on hay, especially my cows. They give milk of better quality than when running out on late frosted feed, or fed on dry hay. Some say cut stalks make their cattles' mouths sore. I never feed cut stalks in hard, frozen weather, but only when it is warm and moderate; and never had cattle troubled with sore mouth. I also feed them moist, and change to hay when cold, or cattle seem tired of them. I never confine cattle to one kind of feed more than five or six days at one time, if possible to change. DAYTON SIGLER.

CLOVER SEED.

"On raising clover seed, and the best method of harvesting and preparing for market."

In preparing land for growing clover seed, we generally plant it two years previously with some root or hoed crop, taking care to manure it well with barn-yard manure. We then seed the ground in the spring with clover seed, sown with a crop of spring wheat on barley, sowing about six or seven pounds of clover seed to the acre, with a due mixture of timothy seed, sufficient to make a crop, should the young clover kill out in winter. The timothy does not injure the clover for seed, and improves the quality of the first crop for hay, and comes in for a crop of hay the following year.

After the grain crop has been harvested, care should be taken not to graze the young clover plant too closely. A little grazing in the fall, as long as the ground is dry and firm, does little harm; but on no account in the spring, no matter in what condition the ground may be. In the spring, the ground should be cleared of stones or roots, about a hundred pounds of plaster sown to the acre, and well rolled.

The first crop of clover ought to be cut from the twentieth of June to about the eighth of July, according to the season; the earlier, the better will be the seed crop, and the sooner it will be fit to cut. As soon as the seed becomes ripe, we take a reaping machine, setting the knives high enough to secure all the heads, and leave the bulk of grass, raking it off as often as enough has gathered for a moderate-sized fork full, as large cocks are objectionable. Ten acres may be cut in a day in this way. Care should be taken to rake the clover off in neat bunches, as it saves much time and labor afterward in turning and raking up the seed.

If the weather is favorable and dry, the clover seed may lay one or two days, and then be turned carefully over, when another day, if dry, will make it fit for the stack or mow. It is of very little use to put seed clover in cocks, as they will not turn rains; and should they get wet in the bunches as left by the reaper, it will dry soon.

In stacking or mowing clover. care must be taken to raise the bottom of the stack or mow, on the side most exposed to the prevailing wind, to allow the air to pass in, and then draw one or more empty barrels up through the mow, as it is filled up, forming a chimney for sweat or steam to pass up, for, no matter how dry clover is, it will sweat more or less when put in the mow.

Clover seed threshes best in the coldest weather. We run the clover through a threshing machine, taking care to feed the machine light, so that it may thrash it clean. After the clover is threshed, it requires to be riddled to take out the stems and stones. This can either be done by using a flat riddle, about five feet long and three feet wide, with meshes about three-quarters of an inch wide.

Where a large business is done in raising or cleaning clover, it is better to construct a riddle about seven or eight feet, either square or six-sided, like the bolt of a flouring mill, the meshes about three quarters or an inch square. This may be placed at an angle so as to allow the chaff and stems pass to the lower end easily, and be operated by hand, or a belt from the machine. It is better to have a clover-hulling machine, which hulls, riddles, and cleans the seed; but those who can not obtain them, can use the riddle. After it has gone through a clover-huller, the seed has to be sifted through a sieve, of about eight meshes to the inch, and then put through a fanning mill to blow out all the dust and light seeds. It is then fit for market.

It has been well said of clover, that "it is valuable to the farmer for three important purposes—to feed his stock, fertilize his land, and fill his purse. His cattle thrive upon it when green, as a pasture in the summer, and in the stall when fed with the hay in winter; his wheat and corn thrive upon it, when buried and decomposing in the soil; and his purse increases with the increase of his cattle and crops." A TENANT FARMER.

Cobourg, C. W., Nov., 1858.

APPLYING MANURE TO CORN AND POTATOES.

"On the relative advantages of applying manure in the hill for corn and potatoes, and plowing it in."

I am greatly in favor of spreading and plowing in manure upon ground which is to be planted to corn or potatoes, instead of placing it in the hill, for several good reasons.

I wou'd not place the manure in hills, because its effects are of small value to the crop of corn or potatoes. What possible benefit can a shovelful or two of unfermented yard or stable manure do a hill of corn? Two-thirds of the farmers use the manure made in winter, for application to their fields in the spring. It is nothing more or less than green manure. If the weather, after planting, should prove wet, it will be one chance in a hundred if the seed does not rot— corn, especially. If the weather is dry, the manure dries into a solid mass, and is more of an injury than a benefit. Should the season be just right, the roots of corn soon grow beyond the effects of the manure, and leave it useless at the bottom of the stalks, where it can be of no use until the field is plowed again for another crop. If well rotted manure is used, applying in the hill will do very well. Yet its effects are too contracted, and the full force of the manure is lost to the crop.

I am not in favor of manuring potatoes in the hill, under any consideration, as I believe it more of an injury than otherwise. I have always seen the best potatoes raised upon ground well manured for some other crop the previous year, especially late years, when there is danger of the rot.

My reasons for spreading and plowing in the manure are, because it is where it can benefit the crop during the whole period of its growth. It is mixed with the soil, and within reach of the roots of the plant along its whole length, where it must be of more value to the plant than when placed in the hill. It is impossible for the manure, when placed in the hill, to influence the growth of the crop beyond the first commencement; and although an early start in spring is very beneficial, yet would not that hill out grow and out yield, which could obtain a rich supply of nourishment for its plants during the whole season, instead of the one which had a full supply during its early growth, but was stinted all the rest of the season, as corn and potatoes must be, when dependence is made upon applying manure in the hill alone?

E. P. R.

ON THE USE OF BURNT CLAY AS MANURE.

About four years ago, I had my attention called to the use of burnt clay as manure, by an Englishman, who used the ashes of burnt clay on his potatoes and garden vegetables. The good results obtained by him induced me to try the plan. Accordingly I burnt ten bushels of ashes from good clay sods, and applied them to one-tenth of an acre of meadow land. I sowed them broadcast, about the last August. The effect was quite perceptible during the fall, and the next season the crop of hay was at least one-third heavier than it was on a meadow adjoining, where there had been no manure of any kind applied.

I was induced by my success on meadow land, to continue the use of burnt clay. I burned two hundred bushels during the fall of 1856, and sowed broadcast one hundred and fifty bushels on one and a half acres of meadow land; and the next spring I applied fifty bushels to half an acre of potato ground. The results of the burnt clay on the meadow land was quite as satisfactory as was my first trial of them, and the results of the burnt clay on the crop of potatoes was equal to an increase of one-third over half an acre adjoining, on which no manure of any kind was applied, both pieces receiving the same amount of cultivation, and were of the same variety of potatoes.

Being well satisfied with past experiments in the use of burnt clay, I burned four hundred bushels, in the fall of 1857, and during the past season have used them on meadow land, on potato ground, and on spring wheat. The results on grass and on potatoes were equal to the results previously obtained; but on spring wheat, the effects were not at all perceptible.

I think its effects on grass and potatoes have been equal to the effects of plaster, if not more so. I shall apply some of it on spring wheat, next season, and I anticipate better results than I obtained last season. I shall also continue its use on meadows and potatoes, and shall try it on carrots, oats, and other crops, and watch the results with interest. BEE.

Hickory Bluff, Erie Co., N. Y., Nov., 1858.

THE VALUE OF LIME AS A MANURE.

"To what soils and crops most beneficial — the quantity per acre, and the best time and method of application."

The extensive and increasing use of lime for agricultural purposes, indicates the opinion of farmers in regard to its usefulness, although there is great diversity of opinion on its application, so as to derive the greatest advantage in promoting the the growth of plants. Experience has taught me that the best and most profitable mode for its application, is on grass land. If the grass seed is sown in the fall, with the wheat and rye, which is the common practice with us in New Jersey, as soon as the harvest comes off the next year we apply the lime, with the least delay, and while fresh slaked and in a dry, mealy state. It can be spread more evenly on the ground, and is in a state to be more readily taken up by the fine roots of the plants, than if allowed to get wet and clammy. It is found most beneficial to keep it as near the surface of the ground as practicable, as the specific gravity or weight of this mineral manure is so great, that we soon find it too deep in the ground for the fibrous roots of plants to derive the greatest possible benefit from its use.

With this method of application are connected several advantages. The lime can be hauled in the fall after the busy season is over, and when spread on the sod in this way, comes in more immediate contact with the grass and grass roots than when the land is first plowed.

In fields that have been limed in part in this manner, and then plowed, and lime applied to the remainder at the time of planting with corn, I always observe a great difference in the corn crop; and in plowing up the stubble the next season, the part limed on the sod is much mellower than that limed after the sod was broken, presenting a rich vegetable mold not observed in the other part of the field.

This discussion respecting the application of lime as a manure, reminds me of the old man's advice to his son: "Put your lime," he said, "if possible, on your new made sod; if you cannot put it on before it is plowed, put it on as soon after as possible; and if you cannot put it on after it is plowed, put it on the best way you can." Though I would not apply it to plowed land on which there was no vegetable coating, unless I supplied the deficiency by a full dressing of long manure.

Hunterdon Co., N. J. JOHN. T. SERGEANT.

THE BENEFITS AND THE BEST MODE OF APPLYING SHELL AND OTHER MARLS.*

Marl has been used as a manure from the earliest ages. "When I marched an army," says Varro, "to the Rhine, I passed through some countries where I saw the fields manured white fossil clay." All parts of England are dotted over with old marl pits from which marl has been drawn out on the land as manure. This marl consists principally of clay combined with carbonate of lime and more or less phosphoric acid. It will effervesce on the application of strong vinegar, which sets free the carbonic acid of the lime. The phosphoric acid, of course, is of great value; and the lime, as it slowly becomes available, is also beneficial. There are also many other valuable constituents of plants in the marl. But since the advent of artificial manures, the use of marl in England is far less common than formerly. The extensive cultivation of the turnip, which delights in light land, has also helped to render marl less needed. The turnips are consumed on the land, by sheep, and their pointed hoofs consolidate the soil; and this I regard as one of the principal effects of the old-fashioned practice of marling.

The usual amount of marl applied to the sandy lands of Norfolk, is from forty to seventy loads per acre — a load being about forty bushels. It is drawn out in autumn and winter, and spread upon the land, so that the frosts can pulverize it. Its effect is slow but very permanent, and invariably beneficial. Lands worth only $1.25 per acre (rent)

* The committee, though awarding the above essay the prize would state that it is not as full or as practical as the importance of the subject requires. They hope those who have had experience in the use of marl, will favor the readers of the *Farmer* with their views.

have been raised in value to $5 per acre, by the process of marling.

Shell marl is usually found under bogs and mosses, and is compossed of the remains of small testaceous fish, which, dying in their shells, become converted into calcareous earth, their bodies, when decomposed, furnishing a rich mould of animal matter.

It consists principally of carbonate of lime, and is frequently burnt and converted into quick-lime. It is said that lime made from shell marl is more valuable for manure than that made from limestone; but of this I can not speak from experience. I can not see why it should be any better. Lime is lime, and it can be nothing else. The organic matter, which is undoubtedly very valuable as manure, would be all consumed by a heat sufficient to drive off the carbonic acid.

Where shell-marl is plentiful, I think it would be better to apply it in the crude state in considerable quantity, rather than to burn it. The organic matter would decompose in the soil, and furnish the ammonia so much needed by wheat and other cereals, while the carbonate of lime would become gradually available from the influence of the atmosphere and the acids of the soil.

It usually proves very beneficial on the mucky land near which it is found. It would seem as though nature had placed it there for use on such land. M. R.

IMPROVING PERMANENT GRASS LANDS.

Having had some experience in the improvement of permanent grass lands, I will state my method of proceeding.

I have had no experience with any other than meadow lands, and these being too moist to plow, have been allowed to remain as permanent meadow. I have been particular in stating the nature of the soil, for the reason that the same management might not answer on different soils. Land intended for permanent meadow, should first have all stones, sticks, and other obstructions, removed from the surface, in order to render it perfectly smooth; and if the field is knolly, it should be leveled. It requires much labor to prepare a piece of permanent meadow, but it pays well in the end, in the convenience of getting over it, the saving of labor in harvesting the crop, and better appearance of the field.

When a permanent meadow begins to fail, and the crop is light, and the field must be renovated, the best way is to give it a good dressing of wood ashes, leached or unleached. If the unleached are used, it will require considerable less than if leached are used. I have tried lime and plaster, but not with so good an effect as when ashes were used. Ashes have a good effect for several years, though I have found that after the third application the benefit in a measure ceases, and the crop is not materially increased. The application of ashes must be changed for some other means of improvement, or perhaps the field will be rendered unprofitable. My way has been to draw from fifteen to twenty-five loads of stable manure per acre, spread it evenly upon the surface, harrow it well, and then sow a peck of grass and ten pounds of clover seed to each acre, and harrow again well. After harrowing, pick up all sticks, stones, or whatever may be brought to the surface, thus leaving it smooth and clean. After this treatment, there will be a fine crop of grass, and the crop will continue good for many years. In the course of the first three years after spreading the manure, a top dressing of plaster will increase the crop.

With the above management, permanent meadow lands can be improved from year to year; but of all other means, the spreading of manure upon the surface and harrowing well, with the sowing of grass seed with each application of manure, is the best. Ashes, plaster, &c., tend to increase the action of the manure, besides their own individual action.

I have never received much benefit from the application of ashes or plaster upon poor soils; but when applied upon lands recently manured, the effect has been wonderful. In fact, the two seem intended to go together, as they each develop the force of the other, and render the application of both more profitable than that of either separate.

E. P. B.

IS STOCK GROWING TO BE RECOMMENDED IN THE PLACE OF RAISING GRAIN?

The two systems of stock-growing and raising grain should go together on all farms and in all situations where stock and grain can be raised.—There may be places where the price of stock is so low that it may be more profitable to raise grain; but even then stock-raising, to some extent, will be found to pay better in the end; for it must be apparent to all that continually taking from our farms and returning nothing to them, will be most ruinous to the soil. We may, by applying lime, plaster, and ashes, stimulate the soil to greater activity for a while; but this will only prove the more ruinous in the end; for these articles only supply the inorganic elements of plants; and if no organic matter is returned in the shape of barn-yard manure, our crops of grain will by degrees grow beautifully less; and then again, there are some soils so springy and wet that grain cannot be grown to advantage. On all such soils, stock-raising of course should take the lead; but as a general thing, the two systems should go hand in hand. Many farmers who keep but little stock, raise no more grain than others who keep several head of cattle, horses, and sheep; and selling all the grain off their farms, and sometimes even their hay and coarse fodder, and burning up their large stacks of straw, and in these and various other ways continually drawing organic matter from the soil, and oftentimes "wasting their fragrance on the desert air," their farms are all the time growing poorer; while others, who keep a large amount of stock, consume some of their coarse grains and all their fodder, make large amounts of manure, their farms are all the time growing better—enabling them to raise more grain and keep more stock. There may be, and no doubt is, a limit to this; but I have sometimes thought that the more stock a man keeps, the more grain he can raise, thus realizing more than a double profit—a profit from both stock and grain, and also a profit from the increased amount of both stock and grain he is enabled to raise from combining the two systems. C. C. WILSON.

Newfane, N. Y., Nov., 1858.

RAISING PUMPKINS.

"On raising Pumpkins—their value as food for cattle, and the best method of feeding them."

The best manner of raising, is the time-honored one of planting among corn. For immediate feeding, gather and feed with a pitchfork, if you choose, slovenly as it is; but if you wish to keep them any time, cut off the vines, leaving the stems on the pumpkins, place them in a wagon carefully by hand, and put them in an open shed; keep them from freezing by covering or removing to a root cellar. Feed with other food, grass, hay, straw, or stalks—and never any more than the animal will eat up clean, and never rely on them for the principal food. As to their value, they are about equal, by weight, to beets, carrots, and turnips—rather preferable to the common white turnip.

Now, friend Harris, were I Prof. Leibig, Lawes, Johnston, or yourself, your readers would be bound to take the above, without argument or reason, like P. G, Glasse in the *Farmer* of November last; but *I*, being an obscure individual, your readers would be very foolish, and the American farmers are too intelligent, to take *my mere say*, without a reason that shall carry conviction.

My manner of raising needs no argument, as it is almost universally adopted. No doubt an acre will produce more corn and pumpkins to plant them together than separate, for very obvious reasons. As to the manner of gathering and storing, you have but to notice that where they are bruised, or the stems knocked off, there they soon begin to rot; and all know that a hard frost injures, and freezing spoils them. It is their value for stock, and the manner of feeding, in which men differ widely in opinion. It is a common remark that "they dry up cows," "will not fatten cattle," and are "good for nothing for hogs." No doubt these opinions (like mine) are founded upon experience and observation—like the man who *knew* there were ghosts, for he had *seen* them. Gathered and fed as they usually are, the above quoted results are precisely what I should expect. It is known to most housewives, that the seeds are a powerful diuretic. They have been used as such probably from the time of Hippocrates. The effect of diuretics is to increase the waste of the body, diminish the volume of blood, and the secretion of milk. The ordinary method of feeding, is to pitch off a wagon load, enough to last two to six days, throwing them hard enough to break the shells. The first meal is made mostly from seeds, producing diuresis, and the above mentioned effects; and during the next four or five days, the animal can no more than recover the effects of the first day. It is known to agricultural chemists, that the pumpkin, like the beet, carrot, and turnip, contains a very large proportion of water—85 to 90 per cent.—decidedly too much to be fed judiciously alone, and too much to be fed all the animal will eat, while running to grass, which, as it is in the fall wet with dews and rains, furnishes about as much water as the animal needs.

Allow me here to digress, and say that the disease among horses in the summer and fall of 1857, which carried off so many in Ontario and Yates counties, (N. Y.) was caused by the excess of water, taken with the grass. I was convinced of the fact at the time, from noticing that no new cases occurred, except immediately after rains, and none among horses kept up nights.

The full value of the pumpkin is obtained when fed with hay, straw, and stalks, adding grain when fed to fattening animals, and never giving pumpkins enough at a time to cloy the appetite for fodder.

The real objection to the extensive cultivation of the pumpkin is, that they are short-lived at best. Still, by care in handling, and good places for storage, they may be kept till January. I have always found milch cows to thrive and increase their milk, when fed on them in my way, and have fed them to hogs and young cattle with decided benefit; and I think them, while they last, the most economical food that can be raised. S. B. P.

Gorham, Ont. Co., N. Y., Nov., 1858.

EARLIEST AND BEST MODE OF RAISING TOBACCO PLANTS.

To raise tobacco plants early and successfully, is a great secret. People often fail to get early plants, because they do not take sufficient pains to put in the tobacco seed; nor do they make their beds in the right location, and put them in a suitable condition for the rapid growth of the plant. A tobacco seed seems to be slow to start, unless you resort to the most ingenious means to force it to swell and sprout.

The earliest, and perhaps the best mode of raising tobacco plants, is as follows:

Prepare a bed, say 40 feet long and 10 feet wide, in a warm place where the sun will help enliven the soil; pulverize the ground thoroughly and deeply, and in the meantime work in fine manure, free from foul seeds, so that weeds will not come up among the plants; rake down the surface of the bed smoothly and nicely; and after you have thus perfected a kind of *hot-bed*—not at all expensive to make—and when you are satisfied that the ground is warm, or in a satisfactory state to receive the seed, sow it on the bed at the rate of three ounces for a plat of ground of the above size. But, before sowing the seed, prepare it in the following manner: Put three or four ounces into a tightly made woolen bag; moisten it with warmish water, and then hang it up behind the stove in a warm location. It will soon begin to show signs of sprouting, (it should be watched;) and having found out that it is about to germinate, by its swollen condition and other indications, sow it on your bed in connection with two or three quarts of dry sand or Indian meal. The surface of the bed should be pressed down with a heavy plank before sowing the seed, and *never rake in tobacco seed;* but, after you have distributed it evenly over your plat of ground, either roll it in with a hundred pound roller made for the purpose, or tread it in with your feet. Some press it in with a plank. About the 15th or 20th of April is the time you should sow your seed, if the ground is passably warm. Some sow earlier and some sow later.

Now for the glass sash work over the bed—the sash made long and not too wide. Some do, and some do not use them. They should be placed over the bed, and the sun soon produces its good effects through the glass upon the surface of the soil, warming it into activity, and thus starting the

little plants into active vegetable life! The glass also protects the plants from frost; but mind you, when the sun shines warmly, be careful that by reason of its effects through the glass, it does not burn up your plants. After the plants have got up reasonably large—as large as a dime, for instance—the glass fixtures may be removed; and then you can dash on your liquid manure evenly with a tin watering sprinkler. You will be surprised to see the rapid growth of the plants, raised and managed in the above manner.

The bed should be thoroughly weeded, and judgment should be used in selecting a plat of ground as free as possible from foul seeds. Sandy soil is, on the whole, the best for the plants. Fine horse or hog manure is the best to incorporate with the soil of the bed.

In a few days after the plants get a start, they will be fit to set in the field in rows three feet and a half apart one way, and two feet the other.

I believe I am right in saying that to be a successful tobacco raiser is also to be a successful plant raiser. Raising tobacco is a trade; and in our Northern States, where a good deal of it is raised just now, the plants should be set early, and thus you will secure your crops early, and no fear need be apprehended that it will not cure.

Hereabout, a large quantity of tobacco is raised annually. Much patience is required to raise it, as in the cultivation of all other plants. T.

CLIMATE, SOIL, &c., OF MISSOURI.

"For the best information in regard to the climate, soil, productions, timber, and price of partially improved lands, in the State of Missouri."

Climate.—It will no doubt be agreed, upon all sides, that a tract of country embracing upward of four degrees of latitude, must have a correspondingly diversified climate. While in the northern part of the State it is found necessary to feed stock for upward of six months in the year, there are many, calling themselves farmers, in the extreme southern part of the State, who scarcely feed at all; while here, at nearly a central situation, we have just begun to fodder our out cattle; and, as a general thing, our feeding time lasts from five to six months.

It has often been remarked of Missouri, that it is the wettest and dryest, the hottest and coldest, country in the world. True, we have extremes; but I have been unable to discover much difference of climate between this State, Western Virginia, and Ohio. Our summers are pleasant. On the prairies, which are our principal farming land, there is always sufficient wind blowing to temper the heat of the sun, so that it is quite rare that the heat is oppressive.

Soil.—Nearly every variety of soil may be found in Missouri. The northern and northwestern part of the State is, in a general way, better adapted to the wants of the grain-grower than other parts. The only reason I have to give for this assertion, is that there is a larger quantity of sand incorporated with the soil, (which is naturally very rich,) and thereby it is of a warmer nature, and crops come up and grow off quickly; while in the other parts of the State there is less sand, the soil is more clammy, water remains at or near the surface a long time, crops start slowly and grow slowly, and a great portion of the prairie soil has a tight clay subsoil, which, although very good for cistern walls, is not so beneficial for farming, at least until draining is better understood and made use of. In the south and southwest, there are large tracts of broken and rocky land, which are unfit for cultivation, but are excellent pasture lands, well calculated for sheep husbandry.

Productions.—The productions of this State embrace every grain and vegetable grown in the Middle or Western States. Indian corn, tobacco, and hemp, are perhaps the staples. In addition to these, are wheat, barley, rye, oats, Hungarian grass, timothy, clover, red top, buckwheat, potatoes (both Irish and sweet), and culinary vegetables generally; melons, grapes, apples, pears, plums, peaches, and small fruits in abundance. Our farmers turn off large quantities of cattle, horses, mules, and sheep. South of the Missouri river, the mineral wealth is enormous. Iron, lead, and coal, are in abundance, while the railways are facilitating the transportation of this mineral wealth which has so long remained undisturbed for want of the means of conveyance.

Timber.—There is a sufficiency of timber, if properly cared for, to supply the wants of the inhabitants of the State. In the southern part, there are large tracts of cypress and pine, while all over the State there are white, black, red, overcup, post, and pin oaks, and black jack thrown in. The bottom lands, which are as fertile as can well be imagined, are covered with sycamore, hickory, linwood, hackberry, and elm, with an undergrowth of pawpaw and spice in many places. Ash is also in abundance.

The price of partially improved land varies with the locality. While in some parts good land with tolerable improvement may be had at from five to six dollars per acre, in by far the greatest portion of the State tolerably improved land rates at from ten to fifteen; and close to cities or navigable streams, much higher.

In conclusion, I would just say to all who wish to settle in a rich, healthy, growing country, come and try it. You may do better, but you may do far worse. WILLIAM D. MITCHELL.

Pin Oak, Warren Co., Mo., Nov., 1858.

"Can Corn fed to Hogs be made to pay east of Ohio?"- Corn fed to swine can be made to pay almost anywhere, by proper management. However fertile land may be, I do not believe you can farm it long without manure. Therefore, in feeding corn to hogs, have an eye to the manure. In fattening swine, the meat is one object, and the manure is equally another. When pork is worth six cents per pound, you get seventy-five cents per bushel, in pork, for your corn; and with proper management, you get, in the long run, seventy-five cents more in manure. Turn your pigs into your orchard up to the middle of August; then put them into the sty, with a good yard, into which throw turf, muck, leaves, sawdust or anything to absorb the ammonia. Sawdust, usually wasted, is much more valuable than many imagine. When thrown into hog-yards or stables, it absorbs the ammonia, and forms a most valuable fertilizer.—Honestus Stearns, *Felchville, Vt., Dec.*, 1858.

MANAGEMENT OF BEES.

Whoever expects to be successful in the management of the honey bee, must discard the word *luck*, and substitute in its place good common sense and untiring attention. If left entirely to themselves, they will be found, like many other branches of rural economy, not to pay, and the bee-keeper will unwisely conclude that he has no luck in keeping bees. On the contrary, if managed with diligence and skill, they will not only furnish the apiarian with some of the "sweets of life," but will also occasionally fill his pockets with the needful.

Spring Management.—Place the hive where it is intended they shall stand during the summer, which should be where the sun can strike the hive in the early part of the day, and also where they can be easily watched by the family during the swarming season. Keep the entrances to the hives pretty well closed, to prevent the chilling of the young brood. This will also guard against robbing; for it is at this season of the year that they are inclined to rob, which they never do when they have plenty of honey to gather. About the first of June, raise the hives from the bottom board by placing blocks of wood or small stones under the corners. Some apiarians raise them up early in the spring, which is wrong, as the cold winds of spring will chill the brood. Some do not raise them at all, but leave them close to the bottom board all summer. In this case they should be examined every few days, and all worms found under the edges of the hive killed—not brushed off on the ground, for that is where they want to go—but give them a regular smashing.

Swarming.—Every bee-keeper should be provided with a bee-hat, which can be made of wire screen doubled round like a cylinder, with the two ends riveted together and a piece of cloth sewed over the top or crown. Take a piece of calico the same length of the screen before doubling, sew the ends together, making a cylinder as of the screen, fasten the ends of the cloth and screen together, and it is finished. Put the hat on, let the lower end of the cloth come down around the neck and shoulders, button the coat or frock tight around the neck, put on a pair of woolen gloves or mittens, and you are armed for any emergency. Let those who have never used one get one and try it, and they will never do without one again. Lay some boards on the ground, and spread a sheet over them to keep the bees out of the grass, set the hive on the sheet with the front edge raised about an inch. If the swarm has alighted on the limb of a tree that can be cut off, cut it off carefully and shake them off on the sheet in front of the hive, and they will soon enter. If they alight on a valuable tree, and you do not wish to cut the branch off, take a pan and brush the bees into it with a wing, and empty them in front of the hive. If they gather on the body of a tree or on the fence, as they sometimes do, brush them off into a pan or dipper, in the same manner. They will readily enter the hive. Some have supposed that the queen must always be got into the hive first, which is not so, she being frequently nearly the last to enter. As soon as they have all entered the hive, carry it where it is to remain, and cover it with boards or green boughs to shade it for a few days. When this precaution is taken, they will not often leave the hive. If the hive is new, never wash it with anything. If it is an old hive, it should be scraped and washed with water sweetened with honey or sugar. Somebody once told me to wash my hives with sweetened whisky, and I have never had a swarm leave when *treated* in that manner. Second or third swarms, if small and late in the season, should be returned to the parent hive, which they will do if the queen is found and destroyed.

Fall Management.—Double all late swarms that have not honey enough to winter, as a large swarm will consume but little more honey than a small one; and if two small swarms, with the contents of their hives are put together, they will generally do well and make one good swarm, otherwise they must both be consigned to the brimstone pit.

Winter Management.—See that the hives are properly ventilated, that the moisture which always arises from the good healthy swarm does not gather in the top of the hive and freeze in cold weather. Many bees are lost in this way. After consuming all the honey where they are clustered, they die of starvation. The remedy is to keep them so warm that the moisture will not freeze, or let it escape by ventilation.

Driving.—Sometimes it may be necessary, in order to save a swarm that is not doing well on account of the comb becoming old or the ravages of the bee-moth, to drive them out into a new hive. Make a box the same size of the hive, with a pane of glass in the top. Turn the hive bottom upwards and place the box on top, and wind a cloth around where they come together. Let them stand a few minutes, to give the bees time to fill themselves with honey; then, with a couple of sticks, rap smartly on the lower part of the hive, and they will rush up to the light to get out. When they are nearly up into the box, take it off, and, having previously arranged a hive as for swarming, shake them out in front of the hive, and they will soon enter. Take the comb out of the old hive, and what bees are left in brush off, and they will enter with the rest. A little tobacco smoke, blown into the bottom of the hive, will sometimes be of assistance in driving them up. The smoke of burning rags will also answer the same purpose. Smoking them also serves to make them good natured and less inclined to sting. If it should be bad weather for a few days after driving, they should be fed.

Doubling or Uniting Swarms. — Drive them out of one of the hives, as directed above. Then take one of the hives you wish to unite them with, invert it and smoke them well with tobacco or the smoke of cotton rags, then sprinkle them with sweetened water with a little peppermint essence in it. Take the box with the bees in it from the other hive, shake them out into the inverted hive, smoke and sprinkle them, and set the hive where it stood, with the front edge raised a little, that the scattering bees may enter. Smoke them occasionally for a short time. This will keep them good natured and give them all one scent, that they can not distinguish friends from strangers. They will commence eating the sweetened water, and,

mingling together, will live as one family. This should be done late in the season. If upon a pleasant day they should come out of the hive, the old one should be placed where it stood, and what bees enter it can at night be returned to the other hive.

Niagara Co., N. Y., Dec., 1858. C. C. WILSON.

FARM BOOK.

"For the best plan of a book in which the farmer can record his practice and experience in the plainest, most simple, and concise manner."

THE value of a well kept farm record can scarcely be over estimated. It should be clear, explicit, and comprehensive—should contain the daily operations of the farm, notes of the weather and its vicissitudes; all interesting items about the animals of the farm, dairy, orchard; a separate record of every crop cultivated;—in short, everything worth remembering about the operations of the farm. This could best be arranged in two books—one for daily notes of work and the operations of the farm, which must necessarily be bringing many things together not properly connected but only to be remembered; the other, the book for future reference, or ledger.

The arrangement of the daily journal would be very simple—the book to be filled regnlarly from the beginning, with the date prefixed to each day's record, so that it would be a continuous record from one day to another through the year.

The ledger should be large enough for the purposes of one year, or may be sufficiently large for several years. It should contain, under separate heads, so as to be easy of access, all the substance of the journal, with some important additions. It may be arranged as follows: First, an alphabetical index, containing the names of the subjects treated of in the book, with the number of the page assigned to it standing opposite. Each subject in the ledger is to be treated separately, on a separate page, and to contain only what the farmer will need for future reference. Much of this matter is to be drawn from the journal, and may be transferred at regular intervals—each week, or month—or at the most convenient times. If Apples be the subject of the first entry, it will be put on the "A" leaf in the index, and given the first page in the book. If Wheat is the next subject, the name is to be put on the "W" leaf in the index, and to occupy the second page; and so of each subject to be treated.

The ledger will contain much that need not be recorded in the journal—as the account of each field kept by itself—the kind of crop, when put in, when harvested, with the yield, would be very useful for future reference, and to compare one year with another. In this way, the yield of the farm, or any part of it, is easily made out.

In its appropriate place, at the end of the year, will be made the balance sheet, containing the expenses, the losses, and the profits. This could be made very readily from a well arranged book.

In this way, a farmer will, in a few years, have laid up a store of experience that will be always valuable, and especially if he is a man of progress; for if his cultivation at one time is faulty, the record of it is continually before him, and the admonition will not be lost. B. G. NYE.

Galesburg, Ill., Dec., 1858.

WILL IT PAY TO KEEP POULTRY IN LARGE NUMBERS?

I HAVE raised large numbers of barn-yard fowls for several years, and have invaribly found that fifty or sixty hens would produce more eggs through the year, in proportion, than twice the number, as they require a variety of food to keep them in health; and when out of health or keeping, they will not lay eggs, or hatch well. If they do hatch, the chickens will sicken and die in a few days, for the want of insect food, feed them as bountifully as you will. You may prevent it, in a measure, by feeding them fresh meat twice a week, chopped fine, with Indian meal, until they are a month or six weeks old, they will then be strong enough to ramble beyond the common walk of the hens and obtain insects, as they keep all clear where they take their daily rambles. I have kept ten dozen hens, and I never in the best season got more than six dozen eggs per day. I have kept four dozen and got thirty-nine per day; from two dozen, I received twenty-three per day for six months.—I have tried it several times, and found I got the largest quantity of eggs and twice the number of chickens in proportion to the number of old hens. I found that to have hens lay eggs, they must have their liberty a share of the time. It is the same with turkeys. The young ones are very tender, and they must have animal food or they will sicken and droop and die. If they run with a hen turkey, she will take them through the fields when the dew is on the grass, and they soon die. I raise them with a barn fowl. This last season I raised eighty chickens and ten turkeys with five barn hens. They had two acres of commons and four acres of corn and potatoes to ramble over. I feed boiled potatoes with oats, and Indian meal jammed with them when hot, placed where they could eat when they pleased when cool. I had five more hens that furnished my family of six with a plenty of eggs for their use, and do so yet. This is the results of my experience for many years. Z. KNAPP.

Forty-fort, Luzerne Co., Pa., Nov., 1858.

"SHOULD THE SUCKERS BE REMOVED FROM CORN?"—Not unless you have plenty of boys with nothing else for them to do. The argument in favor of removing the suckers from corn I suppose to be this: The suckers rob the stalks of nourishment necessary to their growth and perfect development, and appropriate it to their own use. They never have but little if any corn upon them, consequently are of no value except for fodder.

I think it will not pay to remove them, unless, as I said above, there is no other work for the boys; and perhaps not then, unless it be to keep them out of mischief. Suckers are not often thrown out from corn on poor, hungry soil; and when they are, it is conclusive evidence to me that everything is as favorable as it can be to the growth and perfection of the crop; that it is growing as fast as it can; that the roots are taking up the necessary food for the plant as fast as it can be manufactured (so to speak) into corn, and perhaps faster; and that, as a natural consequence, these new shoots or suckers are thrown out because the sap or food for the plant can go in no other direction.—C. C. WILSON, *Newfane, Niag. Co., N. Y., Dec.*, 1858.

HOW CAN HENS BEST BE KEPT SO AS TO PROCURE EGGS IN WINTER?

Build a commodious hen house upon some plan, only that there be a roosting apartment, a place for feeding, with boxes for nests. A good plan is to build in the shape of a parallelogram, with the roosting place across one end. The central portion can be used for feeding, the boxes for nests being placed around the sides of the building, with a small place between them and the wall, that the hens may enter the nests on the back side. Build the house either of stone, wood or other material, as may be thought best; but let it be warm and comfortable in the coldest weather, and so made that it can-be well ventilated. Procure some of the large Asiatic breeds, as I have found, by my experience, that they will lay in winter when the common varieties will not, with the same treatment. But the person who expects his hens to lay much in summer, after laying all winter, will be disappointed. Give them as great a variety of food as possible, such as corn, buckwheat, oats, barley, &c., with pure water, daily. Give them fresh meat once or twice a week, or oftener, if convenient, with an occasional feed of boiled potatoes or apples. In short, make their feed as near as possible what it is in summer, and not forget to give them a free supply of oyster shells pounded fine, or lime and sand. Mix lime and sand as for plastering a house, let it dry and place a box filled with it in one corner of the hen-house, and it is surprising how fast it will disappear.—Hens will lay some in winter without being to all this trouble; they must have good, comfortable quarters. There are other advantages from having a good hen-house aside from hens laying in winter. Two or three wagon loads of good home-made guano, every year, will soon pay the expense, and help to raise corn to feed them. And then, again, fresh meat cannot always be procured. They will lay if they have plenty of corn; and as this contains a large portion of oil or fat, it may perhaps be substituted for meat to some extent.

Newfane, N. Y., Nov., 1858. C. C. WILSON.

GRAFTING OLD APPLE ORCHARDS.

"Is it better to ingraft old apple orchards of an inferior kind, or to plant new ones of improved varieties?"

In considering this subject, much depends on the age of the trees in the old orchard. If they are past bearing, or nearly so, beginning to decay, it would be poor policy to expend time or money to graft on such stocks; but trees not too old—say not to exceed forty or fifty years from the time of setting—good, healthy trees, that have not been injured by ignorant and unskillful trimming, or some other cause, may be grafted to great advantage over cutting down the old trees and planting out young ones, in order to obtain the desired varieties of fruit. At all events, such has been my experience in fruit growing. My orchard has been set between thirty and forty years—all seedlings. From six to eight years since, I commenced and finished my grafting, nearly. My grafted trees are now healthy, in good bearing order, with tops sufficiently large to bear from eight to twelve bushels of apples each. Seven years ago, I set a young orchard with trees of the usual size. These are now just beginning to bear; but I believe I have not as yet gathered a bushel from any one tree in this orchard, while from the grafts I have gathered as above stated. The grafts on the old trees are equally thrifty, *if not more so*, than the young trees, and the apples of as good quality. But renovating the tree and regenerating the fruit by grafting, requires experience and attention. In the case of large trees, not more than one-third of the top should be grafted in one season. Hence it would require three years to complete the operation.

Grafting large trees is also attended with some expense, it is true; *but then it pays.* I have set over seventy grafts in one tree. One tree, grafted seven years ago, has a top sufficient to bear, in good seasons, from twelve to fifteen bushels of apples. It is of the *Golden Sweet* variety. This, however, is not an unaided result; it requires some little attention—not a large amount, however, if given at the proper time—in preventing the growth of sprouts from the original stock from robbing the grafts of their proper nourishment. For want of this trifling care, I have known several instances where the grafting of an old orchard resulted in but little benefit to the owner. Proper care, or knowledge, and a judicious application of that knowledge, is indispensable to success in the different callings and occupations of life. D. LOTT.

Lattsville, Warren Co., Pa., Dec., 1858.

CULTIVATION OF LIMA BEANS.

Though it may not be in my power to give you the best method of raising Lima beans, I will furnish you with my method, which has for several years resulted successfully.

It is not worth the trouble of trying to raise the beans, unless it can be done on good soil. I prefer a warm gravelly or sandy loam, which should be tilled deep, worked up very fine and mellow, and mixed with well decomposed manure that may be incorporated with the soil, if possible, two or three feet deep. I take great care to select a place that dries off early, and remains free from standing water or any unnecessary wet after showers. It improves the soil to turn and stir it two or three times during the spring, to assist in getting it warm. Some of my neighbors stir in fresh horse manure because it is warm, but my experience is against fermenting manures in the bean patch.

For a part of my patch, I start the beans in the hot-bed, on an inverted sod about four inches square. They root well and commence a strong growth in a thick, rich sod. It is very necessary to expose them to the air to get them well tempered before planting out. Remove them in the sod to the place prepared for the hills, which should be not less than four feet apart each way, and so made that the whole of the sod, now quite tender, can be placed in, and not on top of the ground.—Place one good pole to each hill; and some times, where the runners are strong, two poles may be used. These I prefer to put down before the roots get large, and have them well settled so as to stand firm. I have some difficulty in getting the runners to cling to the stakes; but, as it must be done, I stick to them until every one has fastened and begun to climb. I find Lima beans require a great

deal of hoeing. The ground must be kept clean and light all around them; and if it hardens after a brisk shower, I hoe it up thoroughly with my potato hook, which has five prongs. They must have a quick, vigorous growth early in the season, to bear well. I begin to pick as soon as they are large enough, and pick at regular intervals of two or three days, being very careful to cut off the pod with a sharp knife, so as not to disturb the vine.

For a main crop, I have had the best success in planting in rich, warm ground, after the middle of May, when warm weather could be depended upon. It takes them a long time to get over a pullback or check from cold wet weather. Planted in either way, the treatment should be the same.

I have practiced reserving some of the finest early pods and letting them ripen for seed. I have improved my beans in this way, so they get often a week's start of my neighbors. Most of the seed that is used are the beans that ripen later in the season, when they do not market as well. It is a mistake. The earliest and best should be saved for planting. On the first appearance of frost, I cut the vines at the bottom and pull the pole, placing them in small piles raised from the ground. I always pinch the tops after it gets so late in the season that the pods can not fill, and also of such vines as do not fruit well. All that is necessary, in a fair season, is good, warm, rich ground, and thorough cultivation and care. H. CLARK.

Geddes, N. Y.

PRUNING THE VINE—WHEN AND HOW.

MANY excellent articles, containing rules and directions for growing, training, and pruning the grape vine, have been published in books and periodicals; but few of them are adapted to the wants of the majority of the readers of the *Genesee Farmer*, though they may be very useful to the tyro in vineyard culture.

Why do grape vines need pruning more than fruit trees generally? is a very natural and pertinent inquiry. Most assuredly they do not, in order to be equally fruitful. The pruning of either is strictly a matter of economy, and not necessary to the production of fruit. Both are inclined to grow too thick for the production of the most perfect fruit; therefore, in such a case we thin them by removing a part. Experiments prove that young, vigorous branches, produce the largest, fairest, and best flavored fruit, on tree or vine; therefore we remove old and stunted branches, to make room for new and vigorous ones. This plan we can follow to greater extent with the vine than the tree; for in the former, the new shoot bears the same season that it first pushes out, and the next season is in full bearing almost its entire length; while in the tree, a new branch from the main one or the trunk requires from two to six years to become equally fruitful. If you examine a vine, either cultivated or wild, that has not been pruned, you will see that, when a few years of age, the lateral branches that first came out are all dead and fallen off, and that all the fruit is on the main and lateral branches near the extremities of the former. As the vine grows older and pushes ahead, more and more of the ground is unoccupied with fruit. Taking the hint from this fact, we shorten in the main branch, and do the same with the laterals, or cut them off for renewal. By so doing, we prevent the vine from getting beyond the trellis, and occupy the whole ground with fruit-bearing branches. Had the vine plenty of space and trellis, I am not aware that the product would be materially increased by cutting at all; still, I have not a doubt that the product of an acre of ground would be quadrupled by judicious pruning, unless the same object should be attained by a yearly removal of a portion of the plants themselves. The end to be aimed at in pruning, is to prevent the branches getting too thick, and to keep the vine within its trellis or boundary. The amount of yearly shortening in may be in proportion to the room you can give it.

As to the time of pruning, I think that in trees we can pretty much study our convenience; but the vine being a more rapid grower, it will not always do to wait. They should be pruned when they need it, taking care, however, not to cut much from the first starting of the sap in the spring till the leaves have attained their full size, as there is at this time too much loss of sap by bleeding. Of course, the winter is the best time for shortening in and cutting off for renewal.

At the last meeting of the Fruit-Growers' Association at Rochester, a majority, I understand, were in favor of the summer pruning of the vine. By this is meant the cutting off the branches of the current season's growth two or three joints above the fruit after it has set, except such branches as are wanted to fill up the trellis, or to take the places of older ones to be removed the next spring. I have generally done this (if at all) after the fruit has set; but Mr. WILCOX, of West Bloomfield, (who is very good authority,) prefers to do it just as the blossoms begin to open, thinking thereby to promote full setting. My own observation, however, does not establish in my mind the propriety of mutilating branches while bearing a full supply of fruit, unless necessary to prevent crowding; but I would shorten in all branches that are not well set with fruit, unless wanted for the next year's bearing.

Gorham, Ontario Co., N. Y., Nov., 1858. S. B. P.

RAISING MELONS WITHOUT THE USE OF HOT-BEDS.*

THE first requisit is dry land with a Southern exposure, or sheltered on the north by fences or buildings. Second, Deep plowing and a thorough pulverization of the soil. I then dig holes four feet one way and six feet the other, sufficient to hold two shovels of good hog manure, well packed, made the previous fall and kept sheltered; then put on about two inches of soil mixed with one pint leached ashes. Plant your seeds, and I assure you melons and squashes will grow. As a protection from early frosts as well as bugs, I use boxes made as follows: Weather boarding 6 inches wide, two of them sawed 14 inches on one edge and 13 on the other, and two of them 15 inches on one edge and 14 on the other, making a square 13 inches on top and 14 on the bottom on the inside. I then nail cheap cotton cloth upon the small end. It admits air and protects from frost and bugs. Being beveled, these boxes may be packed in small com-

* The committe award a Prize to each of the following essays.

pass. For squashes, they must be larger, and can be removed in the day time and saved for years.

DAYTON SIGLER.

SELECT a piece of new or sod land, rather sandy, if you have it, manure it with *well rotted stable manure* in the fall, and plow it under. In the spring, as soon as dry, plow again and turn a double furrow at intervals of six or eight feet. Upon these furrows plant your seed, about the 10th of May, in hill, for muskmelons, six feet apart; for watermelons, eight or ten feet apart. Use no unfermented manure, especially in the spring, about the hills; but when the plants appear, mix about half a bushel of fresh cow manure in a barrel of water and water the plants in the evening after the sun is down. This will give them an early start and keep off the bugs. Cultivate them well with the plow and hoe. Let from six to eight of the first set, remain, and remove the rest; and if you do not raise fine and large melons without starting them in a hot-bed, I shall be greatly mistaken. I have raised the *Wafert Cantaloupe* to weigh 12½ lbs. by this method, and pumpkins to weigh 130 lbs. My favorite melons are *Nutmeg*, *Christiana*, *Honey*, and *Wafert Cantaloupe*, from South Carolina, and *Ice Cream* and *Goodwin's Imperial* watermelons.

W. C. HAMPTON.

Mt. Victory, Ohio.

ON THE ADVANTAGE OF SEWING MACHINES IN FARMERS' FAMILIES.

I HAVE been in possession of a sewing machine for about nine months. It works admirably, and is well adapted to the wants of the farmer's family. If we look at our time, ease and comfort, and above all, health, the sewing machine is almost indispensable. I can do as much on my machine in one hour, as I can in four or six hours with the needle. Of stitching and close back-stitching, I can do as much on the machine in one minute as I can in half an hour with the needle. It does not require much more fixing and basting, as many suppose, than is necessary with the needle. As for ease and comfort, which is equivalent to time, there is not more labor in operating the machine one hour than sewing the same length of time with the needle; besides, in operating the machine, the exercise is rather conducive to health than otherwise, while it is well known that hand needle work has slain its thousands. Some say it has slain more than the sword. Then, again, is not health one of the greatest blessings bestowed upon us? Why not take advantage of the opportunities afforded by the invention of a machine so well adapted to our wants, as well as conducive to economy? I believe it is the most economical piece of furniture that can grace a homestead.—Reflect for a moment on the difference in time spent, labor saved, as well as expense of a seamstress, or of overtaxing tired heads and hands, long after nature calls them to be at rest. I know this to be a fact, common among the mothers of families and those who sew much. I have known something of this myself, and would urge any who may read these lines to procure a machine as soon as possible.

There is such a variety of machines, both high and lowed priced, they come within the reach of any farmer's family as well as others. It does not require any very great length of time to learn to operate them, and is so easy and simple that almost any child ten or twelve years of age could be taught quite readily.

PHEBE W. COOPER.

ON THE MANAGEMENT OF CANARIES AND OTHER BIRDS IN THE HOUSE.

IN keeping birds in the house, I always use unpainted cages, as I think them more healthy than painted ones as birds peck the paint, which often poisons them. Cages that I have used are made of mahogany, with a draw in the bottom for convenience of cleaning, with china or glass cups on each side to hold the seed and water. There should also be a cup of water large enough for the birds to bathe in, but not large enough to drown them. They cannot be healthy without plenty of clean water, both for bathing and drinking. The cage should be large enough to allow them to fly about and enjoy themselves.

The time for Canaries to pair is about the middle of March, when they should be placed together, each pair in a large breeding-cage. If brought together before, they will fight and sometimes kill each other. If they agree, they will soon begin to feed each other, when they must be supplied with a box two and a half or three inches square, or a basket made for the purpose, hung up in their cage, in which to build their nest, also materials for building. I have found hemp rope cut about an inch long and picked to pieces, and the white hair from a calf's tail to be the material they prefer. They will build and throw out their nests several times; but when they begin to be really in earnest they will work very fast.

When the bird has laid one egg she will begin to sit, and lay an egg every day till she has four; and in two weeks from the time the first egg is laid it will hatch. During the time of setting, the birds must be attended to very carefully, giving them a variety of food, such as egg boiled hard and chopped very fine, with bread, and bread and milk, as well as seed, of which it is best to give them several kinds. The milk should be scalded to prevent their becoming sick during incubation, which frequently happens without it. The white of the egg should not be given the young—only the yolks—as they cannot eat the whites and remain healthy.

The cage should be examined while there are young in it very frequently by lamplight, to ascertain whether there are mites about it, which are small red insects barely perceptible to the naked eye. Unless these mites are kept out of the cage, it is useless to attempt to raise or keep birds. A single drop of sweet oil on the sole of each foot of the female, when she commences sitting will guard against their attacks.

Once a month the birds should have a small pinch of saffron in their drinking water. Great attention must be paid to the cleanliness of the cage. The drawer should be cleaned and sprinkled with fine white sand daily. The cage should be cleaned thoroughly once a week, and well dried before the birds are returned to it, except while the bird is sitting, when it *must* not be disturbed, except to take out the drawer and replace it when cleaned, covering the bottom with fresh sand.

If it is necessary to handle the birds, it must be done carefully as they are very tender, and will not bear much handling. Great care should be taken not to frighten them. I have known a valuable Canary bird so frightened that he never sung again. Strangers should not go very near the cage, and no one should look into the nest while the bird is sitting, or she may desert it.

We have frequently let them out of their cages, taking care to close all places where they could make their escape. They fly about and alight on heads and shoulders, and sometimes on our hands; and if there are plants in the room they seem to take great delight in flitting about among them. When tired they will return to their cages. It may be necessary to place a piece of apple or something tempting inside of the door of the cage to call him back; but they will soon become so familiar, if allowed to be out often, that they will not need much coaxing to induce them to return.

Ripe fruit in its season, sugar, chickweed, or lettuce, are excellent to keep them in health.—Cuttle fish bone and bread or cracker should always be in the cage for them to peck at; but they should never have rich cake. If they have the dumps they will set on the perch with their feathers rough, not taking the trouble to dress their plumage. Put a drop of sweet oil on the sole of each foot and it will cure them. A little scalded milk on some bread will cure the diarrhœa. When moulting they should have less seed, but be supplied with soaked bread, lettuce leaves, fruit, &c., to allay the natural fever.

In winter they must be kept in a warm room, but not very near the fire. In summer the cages should be hung out of doors a part of the day, to give them air, but shaded from the sun. Dew or rain must not fall on them.

I have kept none but Canaries and Goldfinches in cages, as I am not one of those who would deprive our native songsters of their liberty, and have them pine away in cages.

Clarkstown, N. Y., December, 1858.

CHEESE MAKING FROM A SMALL DAIRY.

It is customary for those farmers who have but a small number of cows, and make dairying merely an incidental business, to change from butter to cheese making, during the warmest weather. Although in this way but a few cheeses can be made, it is important that they should be made well. Hence a few hints to beginners—and those of experience too—may not be amiss.

The first care should be to see that the rennet is properly preserved and prepared, as the quality of the cheese depends very much upon the rennet used.

Preparing Rennet.—The calf should be allowed to stand several hours after sucking before being killed. The rennet should be carefully removed, the curd taken out, and skin or stomach turned wrong side out; the specks of dirt removed by *picking* from the skin and curd, if there is any; *but by no means rinse the skin*, as that removes a portion of the mucus in a free state, which is the only active principle of any value contained in the rennet. Put the curd into the skin, add a pint of fine salt, and more if the rennet is a very large one. The whole should be placed in a cloth bag, and hung up in a cool, dry place till wanted for use. Old rennets are considered better than new, as being stronger. When wanted for use, soak the rennet in warm water two or three days, strain off the liquor, add as much salt as will dissolve, keep in a cool place. This process must be repeated once or twice before the whole strength will be extracted.

In the manufacture of cheese it is important to have the room and utensils sweet and clean. Next to this comes the necessity of keeping the milk sweet. If the milk or curd becomes "changed," or begins to ferment before putting in the press, the cheese will be very likely strong.

The milk, after it has been strained into the tub, should be warmed to a proper temperature—which is about 90 Fah., or nearly as warm as when taken from the cow—by adding a portion of heated milk. If the milk gets too warm the cheese will be hard. The rennet is then added, the milk well stirred, and left till the curd has come. The quantity of rennet depends upon its quality, as well as upon the quality and temperature of the milk. It is difficult to determine the exact amount. The richer the milk in cream and cheese, the greater must be the quantity of rennet; therefore more is required in summer than in winter. The warmer the milk the less rennet. Experience is the only guide in this operation.

The time necessary to produce perfect coagulation is from thirty to sixty minutes. Better exceed sixty minutes, than to get in too much rennet. It is much better to get in too little than too much rennet; and should the milk not curd within a proper time, it requires only an addition of weak rennet to effect a perfect coagulation. As a general thing, the longer it is coming the tender and sweeter will be the curd.

When the curd is formed sufficiently, it is broken up quite fine, either by hand or curd breaker, made for the purpose, which cuts it into very small pieces. The whey is then separated from the curd by passing through a strainer previously placed in the cheese basket. The curd is then placed in a strong cloth, and well pressed to remove the whey. It is then put in a cool place, and the operation repeated till there is curd enough to make a cheese the desired size. When the right quantity is obtained, the curd is all broken up very fine in water, heated sufficiently to make the curd quite warm, when ready for the press. The object of thus warming is to made the different curds unite readily, or as it is termed, 'close' well. When the 'scalding' is completed, drain off the water as dry as possible, and keep the curd broke up fine, so as the better to mingle with the salt. Care should be taken not to mash the curd so violently at any time as to start the white whey, as that detracts from the richness of the cheese at once.

When the curd has drained sufficiently, add salt at the rate of one pound to every thirty of dry curd. After the salt has been thoroughly incorporated, a strainer sufficiently large to cover the whole cheese is placed in the hoop, into which the curd is put. The pressure should be moderate at first, increasing gradually for two or three hours. The cheese is then taken from the press, turned, and a dry cloth put around it. Place it again in the press and subject it to a powerful impression thirty-six hours, turning once or twice,

and apply fresh cloths. To protect from the flies, cover with cotten cloth dipped in melted butter, and afterwards grease them thoroughly. They should be turned every day, and the mould, if any, rubbed off, occasionally applying a little more grease, until the surface becomes smooth, when turning once in two or three days will do.

Andover, Oxford Co., Me., Nov., 1858. FRYE, Jr.

BREAD MAKING.

In making good bread, yeast is a highly important ingredient. We mostly use potato yeast, which is made by grating potatoes and boiling a handful of hops—say a bowlful of potatoes to two quarts of hop water. Boil until it thickens, then add one tea cup of molasses and a handful of salt. When cool enough, add yeast to raise it. This, put away in a cool place, will keep for a long time. Other yeasts answer the same purpose.

At night, get as much flour in a tray as you wish for bread. Let half the wet you wish be sweet milk. Boil it and pour on the flour, incorporate with a spoon, and then take the same quantity of cold water, stirring the sponge till stiff and thick. It will then be of the right temperature to add the yeast. One tea-cupful will make six loaves of bread. In the morning it is made or kneaded up, without any more wet, adding a handful of salt.—It will soon rise, and when light, pinch it off carefully, placing each loaf in a pan. Let it stand until it ruffs up, and then place in a hot oven to bake, though not hot enough to burn. One hour is sufficient time to bake a good sized loaf. We do not believe, as a learned lady asserted in our paper not long since, that bread, to be good, must be kneaded for hours. We knead bread until it is tough, and we are tired, say ten or fifteen minutes, for six loaves. If kneaded too long, it becomes cold and stiff, and does not rise so readily.

Aurora, 11th mo., 1858.

BUTTER MAKING.

There may be many ways to make good butter, but there is one way that will never fail. Have everything that pertains to it sweet and clean. In summer, a good, cool, dry cellar, is very essential. Place the milk in pans in the middle of the cellar, on a shelf, not too close together, nor admitting, in warm weather, nor indeed at any time, too much air. Pans that are much the largest at the top are best, and those that hold from four to six quarts are sufficiently large. Invariably skim the milk before it is loppered. It is best to be skimmed as soon as sour, which can be done in a tin cream tub, with a tight lid, which will hold as much as you can churn at a time, and which should be kept on the cellar bottom. The best butter is that when the cream does not stand too long before being churned. It should be churned every other day, at farthest. Let the churn in warm weather be rinsed with cold water, and set in cold water while churning. Boiling water should be taken to rinse the churn when it is cold, and the temperature will admit, before cream is put in for churning. The best butter we have ever eaten, has been when the up and down churn has been used.

When the butter has sufficiently come, take up in a tray or bowl, work out the buttermilk, and then pour over pure cold water, working it through that, pour it off, and add fine salt—an ounce to a pound. When this is thoroughly incorporated, set it in a cool place, until the morrow, when it should be worked with a ladle until the buttermilk is separated, but not until it is greasy, when it is ready for packing. Keep the firkin covered with a thick cloth, under the lid, while the firkin is being filled, is all-sufficient.

I deem saltpetre, or saltpetre water, on butter, highly pernicious. Butter is like many other things, whose beauty and sweetness is much marred by too much handling. All know we can make butter white and of the consistency of cream, by beating. Hence to churn too long after it has come, to work too much, in water or out of water, will make white rancid butter. A word to the wise is sufficient. M. S. B.

DRESSING POULTRY FOR MARKET.

In dressing poultry for market, much care should be exercised to keep them from getting bruised, or the skin torn, or in any way disfigured. We have found that the difference in the modes of dressing, often makes a difference of from one to two cents a pound; and this, too, when the one lot of fowls was as well fattened as the other.

Feed liberally for a few weeks before killing, as nearly double the weight will be attained, and nearly that difference made in the price, for the finishing off food.

Killing.—To keep them from bruising themselves, secure the wings as soon as caught, and tie them behind the back. Hang them up by the heels and cut the jugular vein, or sever the head with a sharp knife, leaving as long a neck as possible. They should be kept from food at least ten or twelve hours before killing; otherwise any food left in the crop sours, and materially injures the flesh if kept long before cooking.

Dressing.—Pick them dry. This may be easily accomplished by plucking the feathers as soon as the fowl is killed. If water is used at all, do it by holding the bird by the leg, and letting an assistant pour the water through the feathers. We find this way preferable to immersing them. The water will better permeate the feathers and suitably affect the skin. Remove the intestines, and wipe the inside dry. If to be carried a long distance, do not wash them at all, except to wash the blood from the neck. Draw the skin back on the neck, cut off the head, if not already removed, draw the loose skin over, tie it tightly, wash off any blood, wiping dry. Hang them in a cool place several hours, or till thoroughly dry.

Marketing.—If your poultry is to be sent some distance, it should be packed in boxes or barrels.—In packing, use clean rye straw. Do not use wheat or oat straw, if you can avoid it. The packing straw should be bright and clean—free from dust and dirt. Put in a layer of straw and carcasses alternately, using straw sufficient to act as a spring to prevent bruising, and pack straw closely under the cover. Nail your box tight, mark plainly what is in it, and to whom it is sent. A little care of the kind above described will greatly increase their market value. FRYE, JR.

Andover, Me., Nov., 1858.

New Advertisements this Month.

Godey's Lady's Book—L. A. Godey, Philadelphia.
The "Little Giant" Corn-Crusher."—Hedges, Free & Co., Cincinnati, Ohio.
Fancy Poultry.—C. N. Bement, Poughkeepsie, N. Y.
Agricultural Steam Kettle.—Hedges, Free & Co., Cincinnati.
Kitchen Mill.— do. do. do.
Chinese, or Swan Geese.—C. N. Bement, Poughkeepsie, N. Y.
Seeds of Evergreen Trees, &c.—J. M. Thorburn & Co., N. York.
Seeds at Wholesale.— do. do.

THE January number of the GENESEE FARMER for 1859, kind reader, is before you. We question, if a more interesting number could be found in the whole twenty-eight previous volumes. It is full of the experience and suggestions of practical farmers and fruit-growers. It contains fifty Prize Essays on important subjects, selected as the *best* of several hundred written for its pages, all of which are *good*. We think no one interested in the cultivation of the soil can read these essays without obtaining some suggestions of more value than the cost of the paper for a year.

Several illustrations and a number of editorial articles are crowded out; but we are sure that no one will regret this, as the space is much better occupied. The Prize Essays have also compelled us to omit a review of the Cattle and Grain Markets, and our usual Horticultural and Ladies Departments. In some respects, therefore, the present number is not a fair specimen of what we intend to make the GENESEE FARMER for 1859. Such as it is, however, we send it forth to its thousands of readers and friends, wishing them each and all a happy New Year.

OUR JANUARY PREMIUMS.—On another page will be found a list of Cash Premiums to be awarded for the greatest number of subscribers sent in on or before the fifteenth day of January. Very few persons compete for these premiums, and a small list will secure one of the largest, while they are so numerous that no one who trys can fail of taking a Prize.

There is yet plenty of time to secure one of these twenty cash Premiums. Speak to your neighbors at once,—show them a copy of the paper, and request them to subscribe. *In most cases they will cheerfully do so.* The *Farmer* is so cheap that all can afford to take it. All that is wanted to secure a good club in every town, is some one who will undertake to receive and forward subscriptions. We have thousands of such agents—true friends of rural improvement—but there is room for thousands more. If there is no agent in your town, will not *you* see what you can do for us? We want every reader of the *Genesee Farmer*, who deems it worthy of patronage, to present its claims to their neighbors, and urge them to subscribe. We shall be happy to send you some show-bills and specimen copies, if you can use them to advantage.

CORN FOR THE WEST.—Our esteemed correspondent, I. S. PERRINGTON, of Sterling, Ill., says he has been experimenting with different varieties of corn, and is yet undecided which is best adapted to the soil and climate of the west. He thinks the *Webster* corn, of Massachusetts, a variety of great promise, especially for unfavorable seasons. It ripens in ninety days. The *King Phillip* he thinks is less worthy of attention than any other variety he has tested. We should be glad if others would give us their experience on this interesting subject.

THE WHEAT CROP IN ENGLAND.—HEWITT DAVIS states that the wheat crop in England is greatly on the increase. He says: "Formerly the return of wheat rarely reached 48 bushels per acre, and 40 bushels were considered a great crop; but last year, (1857,) instances of 48 bushels were comparatively common all over England, and as much as 64 and 72 bushels per acre, and even more, were publicly stated to have been grown in Kent and Essex." What say the readers of the *Genesee Farmer* to this?

THE RURAL ANNUAL AND HORTICULTURAL DIRECTORY FOR 1859 has been unexpectedly delayed. All orders will now be filled as rapidly as possible. It is a handsome volume and should have an extensive circulation. Every reader of the *Genesee Farmer* should have a copy. The *Farmer* and *Annual* are sent in clubs for fifty cents the two. Single copies, 25 cents each. We prepay the postage, in all cases, on the *Rural Annual*, without extra charge.

GRASS LAND IMPROVES THE SOIL.—An experienced correspondent of the *Genesee Farmer* writes:

"One of the greatest advantages of stock growing, is the continual improvement of the soil. Lands in grass occasionally supplied with powdered gypsum, will not deteriorate in value, but continue improving, unless the products are all removed. I have seen the whole area of cultivated lands doubled in quantity and value of products, in Steuben Co., N. Y., by easy and profitable management in pasture."

A FINE PEAR.—Mr. GEO. MAY presented, at an exhibition of the Horticultural Society in Boston, a *Duchess d'Angoulems* pear measuring 13½ inches in length, 13½ inches around, and weighing 24 ounces. The records of the Society show that one weighing 24½ ounces, and also one of 27 ounces, have heretofore been exhibited. One is mentioned as raised in New Jersey, weighing 35 ounces. If as good as large, we can not have too many of them.

PRIZE ESSAYS.—We hope to be able to publish another good list of subjects for Prize Essays in the February number, and hope our readers will name such as they desire discussed. Our object in offering these Prizes is to call out the opinions of our readers; and if there is anything in those published that does not accord with their experience, we hope they will not hesitate to give us their views.

FARM-BOOK.—Your committee, though they do not award the prize to the following essay, would recommend its publication, and urge farmers to take the hint and record their experience in the *Genesee Farmer*.

"THE best plan of a book in which the farmer can record his practice and experience, in the plainest, most simple, and concise manner"—and by which said practice and experience will result in the "greatest good to the greatest number," is the *Genesee Farmer*.—D. A. A. N.

Rich Milk—Who can beat it?—W. H. Robinson, of Irondequoit, informs us that he has a three-year-old heifer, which will come in about the 1st of next April. She now gives (Dec. 10) four quarts of milk per day. Nine quarts of this milk were churned, and produced 2 lbs. 10 oz. of butter, or 4¾ oz. from one quart of milk. Another trial was made the next week, when 10 quarts of milk produced 3 lbs. of butter, or 4 4-5 oz. butter from a quart of milk. This, we believe, is the largest yield of butter from a given quantity of milk on record. Can any of the readers of the *Genesee Farmer* beat this?

Mr. Buckminster, of the *Massachusetts Ploughman*, states that four quarts of milk from his Devon heifers give one pound of butter; Mr. Prentice, of Albany, N. Y., states, in the *Country Gentleman*, that his Ayrshires produce one pound of butter from 6 quarts of milk; and Mr. Norris, of Farmington, Ct., has Alderneys that beat this somewhat. The general average, from good dairies, is about a pound of butter from fifteen quarts of milk.

The heifer of Mr. Robinson is part Devon, Durham, and native. She was fed on clover hay, and had in addition about half a bushel of potatoes per day. Mr. R. thinks no other roots will furnish so much butter in the winter, as potatoes. The butter produced by this heifer is as yellow and of as good flavor as can be made at any season of the year.

Tobacco.—In reply to our offer for a Prize for the best essay "on the best and earliest mode of raising tobacco plants," a correspondent facetiously remarks:

"Attach a good team to an eagle plow, and raise them on the mold-board of said plow, and turn them under as the team proceeds across the field. This should be done early in the morning. I consider this the earliest and best mode of raising tobacco plants."

Wheat in Vermont.—A correspondent in Windsor county, Vt., says: "The idea that manure makes wheat lodge, is the offspring of laziness. We often raise here between forty and fifty bushels of spring and winter wheat per acre, while the rich farms of the west, without manure, scarcely ever exceed twenty bushels."

Black Knot.—W. W., Snackwine, Ill., writes:

"The black knot is often seen on the wild plum in this vicinity, though it is not general. I have never known any of the wild plum cultivated. The tame plum is a sure crop here. I have seen but one case of the black knot on the tame plum."

Virgalieu Pears.—At the "Crystal Palace Horticultural Exhibition" in England, the first prize "for the best flavored varieties" of the pear was awarded to the *White Doyenne*, or *Virgalieu*; the second best to the *Gratioli*.

The annual meeting of the Western New York Fruit Growers Society will be held in this city, January 5th.

Inquiries and Answers.

Black-Leg in Calves.—I am desirous of obtaining information in relation to this disease of calves or young stock, there having been several cases of the disease in this vicinity. We call it the bloody murrain or black-leg. They die in a few hours after the disease first shows itself. The animal loses the uses of his limbs, froths at the mouth, and dies. If his hide is taken off after death, the body appears to be mortified, with a bad smell. If you or any of your numerous correspondents can give a remedy, we should like to see it in your valuable paper.
Prescott McDole.—*Madison Co., N. Y.*

Fence Posts—Training Cattle.—I wish to tax your columns to make inquiry if any of your numerous correspondents or readers are able to answer the question, whether or not fence posts will last essentially longer when set top end downwards? If it is a truth, as I have heard it asserted, that they will last from a fourth to a third longer, it is certainly an important fact, and I should be much obliged by correct information in the matter, through your columns or otherwise.

I would also say to Mr, Jno. Sanfield, of Ill., that if he has a system of training or conquering animals, which he esteems valuable, and would invite his fellowmen to adopt, I would suggest that he gives us a little more minute description of his process. E. Morton.—*Berrian Co., Mich.*

Draining Tiles.—Can some one tell me, through your columns, the best and cheapest mode of making draining tiles? W. F. Herron.—*Bartholomew Co., Ind.*

ADVERTISEMENTS,

To secure insertion in the Farmer, must be received as early as the 10th of the previous month, and be of such a character as to be of interest to farmers. Terms—Two Dollars for every hundred words, each insertion, payable in advance.

AGRICULTURAL STEAM KETTLE.

SAVE YOUR MONEY, GRAIN, LABOR, TIME, AND FUEL.

THE undersigned manufacture a cauldron steamer, heater, or cooker, which for simplicity, safety, and general adaptability, has no equal. This consists of a cast iron cauldron arranged with reference to the greatest economy of heat and fuel, and calculated for setting in brick work, in a manner so simple as to be understood by farmers or any unmechanical person. For heating water for hog slaughtering, family washing, tanners' or dyers' vats, hotel laundrys, or wherever rapid, convenient and economical boiling is desirable, the advantages of this useful device are conspicuously manifested. The steam is rapidly generated in the cauldron and conveyed through vulcanized pipes into boxes, tanks, barrels, tubs, or whatever convenient vessels best suit the operator, or the several processes of heating, steaming and cooking may proceed simultaneously with scarcely more fuel than is required for a cook stove. The possession of one by the farmer enables him to cook ground feed, pumpkins, or potatoes, or steam his chopped stalks, straw, or hay for his stock, heat water for the family washing, and fast enough if need be to scald three hundred hogs per day.

Prices for the three sizes respectively, $35, $45, and $60. Catalogues with description, together with full treatise on the sorghum cane, will be forwarded on receipt of three postage stamps to

HEDGES, FREE & CO.,
Jan. 1859.—1t. Cincinnati, Ohio.

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WE are in receipt of a few of the leading sorts of TREE SEEDS, in advance of our annual assortment, embracing nearly 300 sorts, among which we can furnish immediately—

Black Austrian Pine Seed, at	$3 00	per lb.
Sea Side do "	1 00	"
Scotch Fir "	1 50	"
European Silver Fir "	1 50	"
Laburnum "	75	"
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American Arbor Vitæ "	3 00	"
Honey Locust "	75	"
Yellow do "	75	"
American Elm "	2 00	"
Allanthus "	2 00	"
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ALSO,

Fresh Apple Seeds, 50 cts. per quart, $10 per bushel.
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To be successful in germinating Pine, Larch, Fir, and most fruit seeds, it is deemed important to sow immediately in boxes, in layers alternated with sand or light soil, and kept in a cool cellar during the winter, protected from mice and rats, and transferred to the open ground in spring.

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RUSSIA OR BASS MATTS—Selected expressly for budding and tying. GUNNY BAGS, TWINES, &c., suitable for Nursery purposes, for sale in lots to suit, by

D. W. MANWARING, Importer,
August, 1858.—1y* 248 Front Street, New York.

1859.

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IN THE ASCENDANT.

GREAT LITERARY AND PICTORIAL YEAR.

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Volumes Fifty-Eight and Fifty-Nine for this Year will contain

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During the year will be given a number of engravings of articles that ladies can make up for *Fancy Fairs*, with descriptions how to make them.

The usual contents of the Lady's Book are—

How to Dress with Taste. Children's Clothes—How to cut and contrive them. Patchwork. The Dressmaker and The Milliner.

Drawing in all its variety, useful to the beginner and the proficient.

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Window Curtains, Broderie Anglaise, Slippers, Bonnets, Capes, Cloaks, Evening-Dresses, Fancy Articles, Head-Dresses, Hair-Dressing, Robes de Chamber, Bride's Dresses, Carriage-Dresses, Wreaths, Mantillas, Walking-Dresses, Riding Habits and Morning-Dresses.

CROCHET AND NETTING WORK IN COLORS. SLIPPERS IN COLORS.

Send in your orders soon, as we expect our list for 1859 will reach 150,000 copies. The best plan of subscribing is to send your money direct to the publisher. Those who send large amounts had better send drafts, but notes will answer if drafts cannot be procured.

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One copy one year, $3. Two copies one year, $5. Three copies one year, $6.

Five copies one year, and an extra copy to the person sending the club, making six copies, $10.

Eight copies one year, and an extra copy to the person sending the club, making nine copies, $15.

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Subscribers in the British Provinces, who send for clubs, must remit 36 cents extra on every subscriber, to pay the American postage to the lines. Address,

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THE "LITTLE GIANT" CORN-CRUSHER.

THE advantages to farmers and feeders from possession of a compact portable Plantation Mill, with which they can crush corn and cobs for stock, or prepare coarse grists and hominy from corn and other grains, for family use or feeding, no one well informed can question. The "Little Giant" is a cast iron mill of this class, very efficient, simple, and durable. It is made in such a manner as to be readily set up and regulated by any sensible farmer, and once arranged may be safely entrusted to a boy. Being constructed with due regard to mechanical principles, it performs its work rapidly and in a superior manner. It is now favorably known in nearly every State of the Union, but it is recommended best, perhaps, by the fact of its having outlived the numerous imitations which worthless persons have endeavored to vend in places where its popularity was established. It is sold complete, ready to stake to the ground and hitch a team to, as follows: Two coned one-horse mill, capable of grinding six to eight bushels feed per hour, $25; three coned mill, very neat, will grind fifteen to twenty bushels, $50. We will mail to any one sending us three postage stamps, our catalogue, containing a full consideration of the economy of feeding ground, ungrounded, raw and cooked grain; also embodying a treatise on the new sugar cane and manual of its manufacture.

HEDGES, FREE & CO.,

Jan. 1859. Cincinnati, Ohio.

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Golden Spangled Hamburgs,—Price, 1 cock and two hens,					$5 00
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MODEL MERCANTILE COLLEGE,

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Author of Fulton & Eastman's Penmanship and Book-Keeping.

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THE

GENESEE FARMER

FOR 1859.

LIST OF PREMIUMS.

The terms of the Genesee Farmer are: Single Subscribers, *Fifty* Cents a year, in advance; Five Copies for Two Dollars; Eight Copies for Three Dollars; and any larger number at the same rate. All subscriptions to commence with the year.

In addition to this reduction of one-fourth, we offer the following List of Specific Premiums as an extra inducement for our friends to form Clubs. It will be seen that they are more liberal than ever before.

SPECIFIC PREMIUMS.

1. To every person who sends us Eight Subscribers, (*at our lowest terms of thirty-seven and a half cents each,*) we will send, postage paid, a copy of our beautiful twenty-five cent book, the *Rural Annual* for 1859.

2. To every person who sends us Sixteen subscribers, (at our lowest club terms of *thirty-seven and a half cents each,*) we will send one extra copy of the *Genesee Farmer* and one copy of the *Rural Annual*, pre-paid, by mail.

3. To every person sending us Twenty-Four subscribers, as above, we will send two extra copies of the *Farmer*, or two copies of the *Rural Annual* and one extra copy of the *Farmer*, or any agricultural work valued at fifty cents, postage paid.

4. To any person ordering Thirty-Two copies of the *Farmer*, as above, we will send three extra copies of the *Farmer*, or three copies of the *Rural Annual* and one extra copy of the *Farmer* or any agricultural work valued at seventy-five cents, postage paid.

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For larger numbers, books or papers will be given in the same proportion, unless, as is most probable, they take one of our large Cash Premiums for the greatest number of subscribers.

☞ To save expense to our friends, we pay the postage on all these works, and persons who are entitled will state what they wish sent, and make their selections when they send orders; or, if their list is not complete, if wished, we will delay sending until the club is full.

JANUARY CASH PREMIUMS

For the Greatest Number of Subscribers.

Thousands of our readers delay sending in their subscriptions till several of the numbers of the new volume are out. In order to correct this practice as much as possible, we have concluded to offer a liberal and very numerous list of Cash Premiums for the greatest number of subscribers sent in by the fifteenth of January. The names of the successful competitors, together with the number of subscribers, will be announced in the February number, and the Premiums immediately paid.

1. TWENTY DOLLARS, in Cash, to the person who shall send us the largest number of subscribers (at the lowest club price of 37½ cents each,) before the 15th day of January, 1859, so that we may announce the successful competitors in the February number. (The order with the money must be *received*, not mailed, on or before the 15th of January.

2. NINETEEN DOLLARS to the person who shall send us the second highest number, as above.

3. EIGHTEEN DOLLARS to the person who shall send us the third highest list, as above.

4. SEVENTEEN DOLLARS to the person who shall send us the fourth highest list, as above.

5. SIXTEEN DOLLARS to the person who shall send us the fifth highest list, as above.

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19. TWO DOLLARS to the person who shall send us the nineteenth highest list, as above.

20. ONE DOLLAR to the person who shall send us the twentieth highest list, as above.

There is not a town in the United States where any person, by showing his neighbors a copy of the paper and asking them to subscribe, might not take some of the largest of the above January Premiums.

Those who do not take any of the Cash Premiums, will be sure of the Specific Premiums, so that we have no blanks.

Clubs are not required to be at one Post Office, or sent to one address. We send wherever the members of the club may desire. Names can be added to a club at any time.

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Rural Annual and Genesee Farmer in Clubs.

As a still greater inducement to form Clubs, we offer the Genesee Farmer for one year and our beautiful twenty-five cent book, the Rural Annual and Horticultural Directory for 1859, in clubs of eight or upwards, at Fifty Cents the two. In other words, for Four Dollars we will send *eight copies* of the Farmer for one year and eight copies of the Rural Annual, together with a Rural Annual for the person who gets up the Club. For Eight Dollars we will send *sixteen copies* of the Farmer and *sixteen copies* of the Rural Annual, and one extra copy of *each* for the person who gets up the club.

Any person sending us Three Dollars for a club of eight of the Genesee Farmer, shall receive one copy of the Rural Annual for his trouble.

We send the club to one address, or write the name of each subscriber on his paper, as requested.

Postage.—The postage on the Farmer sent to any place in the State of New York, paid quarterly in advance, is three cents a year; to any other place in the United States, six cents a year. We pay the American postage on all papers sent to the Canadas, or any of the other British Provinces. In all cases we pay the postage on the Rural Annual.

Our Agents, and Competitors for the above Premiums, will remember that our terms are always IN ADVANCE. One Copy, Fifty Cents a Year; Five Copies for Two Dollars; Eight Copies for Three Dollars, and any greater number at the same rate (*three shillings per copy.*)

☞ Subscription Money may be sent by mail *at my risk, and you need not "register" the letters.*

Address **JOSEPH HARRIS,**

December, 1858. Rochester, N. Y.

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SEEDS AT WHOLESALE.

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